THE

WESTERN JOURNAL

OF

MEDICINE AND SURGERY.

MAY, 1849.

ART. I.—*Cholera as it appeared in Nashville.* By A. H. BUCHANAN, M.D., in a letter to Prof. Yandell.

DEAR SIR:—On the 27th of December, 1848, the steamer Caroline Watkins, from N. O., where cholera was prevailing when she left that port, arrived in Nashville one death having occurred on board from cholera. On her trip up to this city, occupying a period of about ten days, she lost eight persons from the same disease. These deaths occurred among deck passengers and firemen, most of whom were foreigners, and, as represented, very imprudent under treatment; one or two of the deaths were among colored persons. On her arrival in our city great excitement prevailed among the citizens, and every one, in anticipation of the appearance of the disease amongst us, was anx-

ious to learn, each from his own medical adviser, what must be done to prevent or cure its dreaded attack. Various prescriptions were made, each physician prescribing according to his own notions of its pathology and treatment. The apothecaries were busy in supplying families with the means under the advice of their physicians, and sometimes without, to combat this fearful malady. The city authorities were also awake to its approach, and every effort was made (I am happy to say) effectually to cleanse the city in anticipation of its appearance. Thus, were we prepared, and fully prepared, for an attack. Almost every family had the remedies at hand, and were well instructed how to use them at a moment's warning. But for three weeks there was no appearance of cholera, and the excitement began to subside, when on the 20th of January, twenty-five days after the arrival of the Watkins, and several days after the arrival of other boats on board of which there was cholera, one case occurred in the lower part of the city, in a house almost surrounded by water; for at this time there was a great flood in the Cumberland, so that the upper and lower parts of the city were inundated.*

The occupants of the house in which this case occurred were of the lowest and most indigent class. This case, a man of intemperate habits, and who had exposed himself to the weather and in the water for several days, died in a few hours after his attack.

On the next day, the 21st, another inmate of this house, and a fellow in all respects to the first case, was seized with the disease but was immediately removed to comfortable quarters, where, under good medical advice and nursing, he seemed to be convalescent, but in a few days died from his own imprudence. The third case

* Nashville descends from the center on the banks of the Cumberland both up and down the river.

occurred in the same house; another associate of the two first was seized on the 22d, and was also removed, together with all the families who occupied the house, to better quarters in a more elevated part of the city. But notwithstanding every effort was made to save him, he collapsed, and died in about thirty-six hours. This case I visited in its last stages, and recognized all the characteristic symptoms of Asiatic cholera, such as I had before witnessed in 1833–'34. The haggard but indifferent countenance, cold, blue, and shriveled extremities, pulseless wrist, sunken, or almost lost voice, with clammy sweat, were all present; as also rice-water evacuations, which clearly indicated the nature of the disease. From this time cholera gradually increased; several more deaths occurred in this family and in the immediate neighborhood. It also made its appearance in the upper part of the city, among a class of citizens much more comfortably situated and greatly above high water mark. The force of the disease seems to have been spent upon these two neighborhoods, but several deaths occurred in the heart of the city, and a few of our most respectable citizens were carried off by it. One family, in which the disease appeared with great severity, lived in a good house in an open lot or field, upon an elevated situation in the suburbs of the city and seemed to be remote from all city influences, or other causes productive of it. In this family two deaths occurred and every member suffered from it. The black population and the lower classes of society, the most ignorant and indigent, were the greatest sufferers.

About the 4th or 5th of February the disease reached its greatest height and as many as four or five died in twenty-four hours. Previous to this time from one to two orthree deaths occurred daily, and after this the disease gradually declined, so that by the 26th Feb. we re-

garded it as at an end. The number of deaths were in all about forty or fifty.

During the prevalence of the disease almost every one in the city complained more or less of some uneasiness in the stomach and bowels. Hundreds suffered from diarrhea and some from dysentery, which in a few cases was very painful and difficult to cure. Many were afflicted with violent spasms of the stomach and bowels and abdominal muscles without discharges, similar to what we commonly call cramp colic. In some cases all the voluntary muscles were violently cramped; the spasms recurred at intervals of a few minutes, not unlike tetanus. Several cases of typhoid fever occurred during its prevalence but the symptoms were not influenced by it in the slightest degree. In the month of December and until late in January our community all suffered more or less from a mild epidemic influenza. Only in a few instances did it appear in a violent form or require medical aid. When cholera made its appearance it rapidly subsided, and very rarely did we witness a complication of choleric symptoms with those of influenza.

You are well aware that several of our physicians here regard cholera as contagious, and many of the most venerable of the profession will not admit of the existence of a case, without it can be traced to a contagious source, nor do they regard the diarrhea or other disordered conditions of the stomach and bowels as they have prevailed here as at all premonitory of cholera. I differ very, very widely from those who entertain such opinions and think we have passed through an epidemic form of cholera, which, compared to the epidemic of 1833 and 1834, was mild in its character, but which, except for the prompt and efficient means used to control it, would nevertheless have proved much more fatal than it really did. I considered the whole community as more or less affected by it and advised all who consulted me to regard

every symptom of disorder in the digestive organs, especially a diarrhea as premonitory of an attack, or in other words as the commencing or first stage of cholera, and to use means at once to arrest it. Such also, I believe, was the opinion and advice of a majority of the physicians in our city. Here then are the causes of the boasted success in the treatment of the late epidemic.

1st. Our city was well cleansed and in good condition when it appeared.

2d. Every family who were able were supplied with remedies, and were aware of the nature of the first symptoms of the disease, and also of the best modes of living to prevent an attack.

3d. The epidemic was mild in its character and gave all fair warning, so much so, that even those who died might almost certainly have been saved had their intelligence and means been sufficient to guard against its insidious attack. It is well ascertained that all those who died had diarrhea or other premonitory symptoms for two or three days or longer before they applied for assistance. And some cases were even in a collapsed state before medical advice was sought. But very few, if any cases occurred suddenly and violently, as in the former epidemic. All those who applied to a physician in the first stages of diarrhea were promptly relieved, and hundreds cured themselves with the remedies at hand, with which they had been previously furnished and instructed how to use. Cholera then as it lately appeared in Nashville was certainly a very curable disease. Taken in time it was curable in almost every instance.

You will perceive from the annexed meteorological diary, which was furnished by the Hon. Judge M. W. Brown, for January and February, that the weather was neither very cold nor warm for the season. The thermometer ranged in January from 13°, on the 6th, to 68° on the 30th, and was generally about freezing point at sun-

rise, and 35° or 40° in the afternoon. But, for the most part the weather was exceedingly disagreeble, being moist, cloudy and chilly, with wet and muddy streets and with a flood in the river which reached its maximum height on the 22d, being 45½ feet above low water mark. The 3d violent case of cholera occurred on the 22d, the day on which the flood was at its height.

The winds during this month were variable, but prevailed from the N. N. E. and S. S. E. The day on which the first case occurred was cloudy and drizzling rain. Thermometer 40° at sunrise, wind S. and S. W. The balance of this month was cloudy and rainy with a temperature generally above freezing point at sunrise, and from 40° to 60° in the afternoon. The weather during the month of February was similar to January, but was colder and clearer and the winds prevailed from the N. N. W. We had several beautiful days in February, with bracing winds and clear sky. The middle of the month was very cold. Thermometer on the 18th being 4° and on the 10th ice formed on the ponds three and four inches thick, and our ice-houses were all filled. From this time the weather grew warmer, and on the 26th cholera left our city. At present we are entirely free from the disease. The adjoining counties, as I learn from letters received, have suffered in a slight degree from diarrhea and general disorder of the digestive organs. You have now a pretty correct idea of the rise, progress and termination of cholera in our city. But before closing my remarks I must say a few words on the treatment.

In all cases of premonitory symptoms, such as pain and fulness in the stomach, which was often complained of, and in diarrhea which was the most common symptom, I advised the use of the following mixture:

Take—Alcohol - - - - - - - - 1 pint,
Gum Camphor - - - - - - ℥ij
Dissolve and add

Laudanum - - - - - - -	℥ij
Compound spirits Lavender	℥ij

Of this mixture 30 to 60 drops were directed to be used upon a lump of loaf sugar, and repeated after each evacuation from the bowels. Or in case of pain or spasm in the stomach or bowels, every half hour until relief was obtained. In many violent cases it was used in larger doses, and in cases of mere uneasiness in doses of 10 or 20 drops repeated pro re nata, as a preventive. I assure you it had the desired effect in all cases in which it was used, and hundreds cured themselves with it who suffered from diarrhea without the aid of any other remedy. In more violent cases or where the diarrhea and vomiting were suffered to run on without treatment until spasms in the muscles, prostration and approaching collapse were evident, I used in addition to the above 2 or 3 gr. doses of opium and repeated at intervals of one, two, or three hours, according to the urgency of the symptoms. The pill of opium was generally washed down with brandy and water, and as many as 10 or 12 grains were administered in bad cases in twenty-four hours. In the absence of opium, laudanum was used with the brandy in teaspoonful doses, and in very urgent cases of spasms and approaching collapse, all these remedies, together with sinapisms to the abdomen and extremities, and also hot applications to the feet and stomach, and other parts suffering from cramps and pain were applied. The patient all the while being well covered up in bed and using hot sage, mint, or other teas, such as were most agreeable. This course of treatment was successful in every case that came under my own observation, except in two cases, and one of these was collapsed at my first visit. In no case did I use one grain of calomel or other mercurial, except in two instances, and then I believe with disadvantage. In the large majority of cases the bowels

were checked up at once by the above treatment and were suffered to remain so for three or four days without evacuations. At the end of this time, or earlier in case of pain or other disposition to stool without evacuations, a tablespoonful of castor oil with 15 or 20 drops of laudanum generally produced a free bilious discharge, such as often follows a dose of calomel, and left the patient convalescent.

In some cases however, this prostration is followed by very slow recovery, or terminates in death. A low typhoid state of fever comes on with red and swollen tongue, feeble voice, sore throat, dry fauces, sighing, nausea, &c. which is always critical. Such cases require the most judicious treatment, and even under the best directed skill will often terminate fatally. But I cannot enter into details as regards the treatment of such cases. Your patience must be already worn out in the perusal of this long letter. I will only observe before closing that I have no prejudice against the use of calomel in the treatment of cholera or any other disease. On the contrary it is my favorite remedy in the treatment of almost all diseases. I merely wish to state a fact as observed in connection with the late epidemic, which naturally gives rise to the reflection that, possibly, we place too much confidence in its powers in other diseases. I confess I was surprised to see free bilious discharges without the use of some mercurial. But such was the fact in many instances from a dose of oil, and in many cases without the aid of any purgative, and where the bowels had been bound up for 2 or 3 days by the use of opiates, the first evacuations that followed were bilious and the patients rapidly convalesced. Should the epidemic unfortunately reappear amongst us during the spring and summer a more extended series of observations on these points will be interesting and possibly I may be heard from on the subject again.

Appended is the meteorological table to which I have referred in this communication.

DATE	REMARKS.	THERM. mi	THERM. max	BAR.	WIND.
M. 1.	Frost, Fog. Partially cloudy. D. P. 30	29	55	29.60	Mod. w.s.w.
T. 2.	Partially cloudy.....D. P. 28	34	42	29.70	Brisk n. e.
W. 3.	Cloudy, snowed, with intermission, drizzling of rain in eve and night D. P. 25	30	32	29.50	Mod. n. e. and e.n.e.
T. 4.	Cloudy, cold.....D. P. 20	26	30	29.56	Mod. n.
F. 5.	Cloudy, clear at night.....D. P. 13	23	26	29.80	Mod. n. more brisk [eve
S. 6.	Generally clear, frost, slightly cloudy at night.....D. P. 14	13	32	29.88	Generally calm.
S. 7.	Snowed from 4 to 10¼ a. m., cloudy rest of the day.....D. P. 25	26	36	29.60	Mod. e.—s.e. and s.
M. 8.	Cloudy.....D. P. 20	32	38	29.55	Mod. brisk n.e.
T. 9.	Cloudy and snowed for an hour in forenoon, partially clear in eve .....D. P. 20	30	29	29.55	Brisk, n.
W 10	Partially cloudy clear at night..... .....D. P. 18	22	28	29.87	Mod. n.n.w.
T. 11	Clear, frost; partially cloudy in afternoon.....D. P. 18	16	36	29.90	Mod. e.n.e. & e.s.e.
F. 12	Partially cloudy in forenoon—overcast in the afternoon, rain at 8 at night continued.....D. P. 34	29	42	29.80	Gusty from s.e. & s
S. 13	Cloudy; rain set in at night and continued very brisk.....D. P. 37	42	51	29.55	Gusty s.w. & s.
S. 14	Continued rain until night, after night ther. rose suddenly from 40 to 58, wind gusty from s. at the time and some lightning D. P. 37	37	37 40.58	29.66 —40	n. n.e. & e. s.
M. 15	Storm before day, heavy wind s w with some thunder and lightning and continued rain to 8 a m. Wind having changed to n w, partially clear at night..D. P. 37	48	50	29.64	Brisk n.w.
T. 16	Frost, partially cloudy....D. P. 32	32	50	29.75	e. & s.e after night [gusty from s.
W 17	Heavy rain before day with thunder rained to 7 a m.....D. P. 38	48	50.46	29.60	n.w. & n.
T. 18	Lightly overcast in forenoon, generally clear in afternoon and night .....D. P. 22	30	29	30.10	Mod. n. e.
F. 19	Frost, clear generally.....D. P. 28	22	40	30.05	Mod. e. & e.s.e.
S. 20	Cloudy and drizzle of rain D. P. 33	40	44	29.82	Mod. s. & s.s.w.
S. 21	Overcast and some rain, clouds thin in evening and broken..D. P. 32	48	45	29.76	Brisk n.w. & n.
M. 22	Thinly overcast in forenoon generally clear in the evening and at night.....D. P. 27	30	33	29.95	Mod. n.w. & n.
T. 23	Slightly overcast in morn, clear after generally.....D. P. 28	27	41	29.80	Mod. e.
W 24	Cloudy.....D. P. 50	35	58	29.66	Mod. s. e. & s. gus- [ty at night
T. 25	Cloudy and brisk rain at 2½ p m to 5. Clouds broken after, lingtning at night.....D. P. 55	59	64	29.48 38.—	Gusty s.s.w. & s.
F. 26	Cloudy, clouds light in evening .....D. P. 33	37	44	29.66	Gusty before day [mod. after n.w.
S. 27	Slightly overcast in forenoon, clear after.....D. P. 31	33	44	29.74	Mod. n.e. & e.
S. 28	Generally clear.....D. P. 40	35	60	29.67	Mod. s. [s.w.
M. 29	Generally cloudy.....D. P. 46	54	60	29.60	Mod. brisk, s.s.w. &
T. 30	Cloudy, slight rain at 3 p m and at night brisk shower.....D. P. 52	62	68	29.50	Brisk s.w. changed [to n.w. at 3 pm
W 31	Cl'dy, rain before day, partilly clear at night for an hour or two. D. P. 44	44	58	29.54 40—	Mod. n. & n.e. ch [to s. at nt. & gus

DATE	REMARKS.	THERM. mi	THERM. max	BAR.	WIND.
T. 1	Rain before day and storm from n.w. partially clear, brisk rains again at night.....D. P. 48	56	60	29.51 43	Mod. nw & n gen.
F. 2	Rain before day and until 7 a m, cloudy rest of the day....D.P. 30	52	42	29.61	Mod. brisk nw & n
S. 3	Generally clear.....D. P. 33½	29	44	29.80	Mod. n & ne
S. 4	A little sleet in the morn, after rain more brisk in evening, snow at night	37	40	29.56 34	Brisk ne & n
M. 5	Clear—light cumuli from n.w. .....D. P. 24	30	34	29.60	Brisk nw. [-nw
T. 6	Generally clear.....D. P. 23	28	46	29.55	Gusty wsw & wwnw
W. 7	Generally clear.....D. P. 20	20	36	29.83	Mod nw & ssw
T. 8	Mod. rain at times.....D. P. 30	38	42	29.59	Brisk sw at night nw
F. 9	Clear.....D. P. 22	28	44	29.64	Mod. nw
S. 10	Frost, clear.....D. P. 18	24	50	29.60	Mod. n.
S. 11	Clear, except evcing slightly overcast.....D. P. 25	26	56	29.34	[eve br nw Mod. & var in m, in
M. 12	Clear.....D. P. 20	28	53	29.48	Brisk n
T. 13	Generally clear.....D. P. 23	25	53	29.62	Mod. brisk nw
W 14	Cloudy, snowed at 2½ until night clear after night.....D. P. 23	34	26	29.78	Brisk nw
T. 15	Generally clear.....D. P. 1½	13	28	29.78	Mod. nw
F. 16	Frost, clear—cloudy to the west in the evening.....D. P. 12	10	33	62 29.48	Mod. sw
S. 17	Overcast, thinly in forenoon and a little snow; heavy snow squalls in afternoon with intervals of partial clearness, continued at night and becoming very cold..D. P. 20	25	34-24	29.26	Gusty from w & nw
S. 18	Generally clear.....D. P. 4	4	24	29.88	Brisk nw
M. 19	Frost, clear except evening slightly overcast.....D. P. 10	7	32	30	Mod. e
T. 20	Cloudy, a little sleet morning, drizzle of rain after.....D. P. 24	33	34	29.72	Mod. e & se

ART. II.—*Some remarks on the Febrile stage of Epidemic Cholera;* with the suggestion of a new theory of the propagation and spread of Cholera. By DR. E. B. HASKINS, of Clarksville, Tenn.; in a letter to Prof. Yandell.

DEAR SIR:—In your review of the Report of the standing Sanitary Committee of the Board of Health of the city of New York, on the subject of Asiatic Cholera &c., I find the following remarks:

"The present epidemic appears to differ in one essential feature from that which invaded our country in 1832. In that, our recollection is, there was little to fear from the subsequent symptoms; if the patient survived the onset of the disease, his recovery was pretty certain. In this, the typhoid stage which follows the primary symptoms is full of danger. According to the report of Dr. Whiting, most of the patients at Staten Island passed through the first attack, and died from subsequent congestion or effusion of the brain. This has been the case in repeated instances in this city. It is a question worthy of serious consideration, whether the free use of opiates, astringents, and stimulants has not contributed to this result."

The typhoid or febrile stage, here spoken of as a new feature in the cholera of the United States by reference to Dr. Jos. Brown's article on cholera, in the Cyc. of Prac. Med., where the literature upon this branch of the subject is well summed up, and ably commented upon, together with his own observations on epidemic cholera, as it was manifested at Sunderland, Eng., in 1832; you will perceive was a very striking and important feature of that disease on the continent of Europe, in England, and to some extent in British India, on its previous visitation of those countries. Respecting the febrile stage of Asiatic cholera, Dr. Brown makes the following strong declaration.

"Now we can positively assert, that we have not met

with a single case in England, in which fever did not intervene between the choleric or cold stage and restoration to health, and the results of enquiries addressed to individuals the most observing and the most familiar with the disease in this country, has proved that their experience has coincided with our own." Touching the typhoid character of the fever he says: "In the progress of the fever, the tongue becomes black, and sordes accumulate about the teeth, the eyes become more and more injected, the intellect more and more torpid, though still the patient can be roused to answer questions, and even may make one or two sensible remarks on his condition; but the instant the conversation ceases, the eyes are turned up in the orbit, expressing through the half closed eyelids the red sclerotica, and the patient is in a state of profound stupor: the urinary secretion is now established, and the urine which was at first dark colored and cloudy, is now limpid and pale; the alvine discharges are darker colored than at first; and throughout the disease there is a deficiency of vascular action, and of temperature, which we have not observed to the same extent in typhus or any other fever. However flushed the countenance may appear, and it is often very considerably so, the temperature of the surface is below the healthy standard, and we have not often found the pulse above ninety. *Typhoid* is not an inappropriate designation of the condition we have attempted to describe." Again, "the duration of such a febrile stage as we have described, is from a week to ten days. Its termination has been in a considerable majority of instances which have fallen under our observation, fatal. The brain has appeared to us to be the organ mainly affected." Of the *post mortem* appearances Dr. B. says: "In the head are found marks of congestion, and even occasionally of extravasation. Such appearances were not of uniform occurrence in the dissections performed in Hindostan, but they were found very constant-

ly in those made by Davy in Ceylon, and Dr. Keir of Moscow, discovered in the Russian disease, the blood vessels of the brain and its membranes, more or less tinged with blood, particularly toward the base, with a fluid effused into its convolutions, and more or less serum in the lateral ventricles, &c. Dr. Brown also makes extensive extracts from the essays and reports of various observers, in confirmation of his views of the febrile nature of the disease; but one of which, however, I will give, and trust you will pardon me for its length. It is from the "Report of Drs. Russell and Barry to C. C. Greville, Esqr." &c.

"After the blue cold period has lasted from twelve to twenty-four, seldom to forty-eight hours or upwards, the pulse and external heat begin gradually to return, head ache is complained of, with noise in the ears, the tongue becomes more loaded, redder at the tip and edges, and also drier. High colored urine is passed with pain, and in small quantities, the pupil is often dilated, soreness is felt on pressure over the liver, stomach and belly; bleeding by the lancet or leeches is required. Ice to the head gives great relief. In short, the patient is now laboring under a continued fever, not to be distinguished from ordinary fever. A profuse critical perspiration may come on from the second to the third day, and leave the sufferer convalescent; but much more frequently the quickness of pulse and heat of skin continue, the tongue becomes brown and parched, the eyes are suffused and drowsy; there is a dull flush with stupor and heaviness about the countenance much resembling typhus, dark sordes collect about the lips and teeth, sometimes the patient is pale, squalid, and low with the pulse and heat below natural, but, with the typhus stupor, delirium supervenes, and death takes place from the fourth to the eighth day, and even later, in the very individual too, whom the most

assiduous attention had barely saved in the first or cold stage."

Drs. Russell and Barry in pointing out the difference, according to their observations, between cholera as it appeared in Europe and in India, say 'Secondly, Restoration to health from the cold stage, without passing through the consecutive fever of any kind, was by far more frequent in India than here (St. Petersburgh); nor did the consecutive fever there assume a typhoid type."

If, therefore, your recollection of the epidemic as it appeared here in 1832, be correct, and that the present prevailing epidemic of our country is marked by a febrile stage, *typhoid* in its type, then it would appear that the American epidemic of 1832 was the Indian variety of malignant cholera, and that the epidemic now prevailing is the European variety of that disease. And hence, an inquiry into the causes which existed—whether the treatment—natural character of the two people, moral, mental and physical,—their political and social condition, the influences of the climate, or what combination of these influences produced the variation in character we have considered—and what it is that has produced the change in the two epidemics in this country, the former assuming the Indian, and the latter the European variety —whether change in treatment (as you have suggested) of atmospheric influences—of habits &c.—and further, whether or not the prevailing epidemic has been marked by the same peculiarities in different regions, that characterized its local development in its former career? And if not, what those changes have been, and the circumstances attending them that may stand related as cause and effect. I say, such an inquiry might lead to no unimportant results.

Propagation and spread of Cholera.—Whilst on the subject of Asiatic Cholera, I hope I will not tax your time too heavily, in making some suggestions relative to the

mode of propagation and diffusion of this disease,—a subject that has elicited much inquiry and discussion, and certainly does merit, from its weighty bearing upon public, as well as private welfare, a large share of professional attention. For it is a very obvious truth, that a correct knowledge of its mode of propagation, if in a limited degree remediable, may lead to far more valuable results, than can the highest improvements in treatment that so formidable a disease is susceptible of.

Without, therefore, attempting a review of those arguments which have been urged for and against the agency of contagion in the spread of cholera, or stopping to examine other theories that have been advanced by different writers, I will at once invite your attention to a law of organic chemistry, as the basis of a theory, that will come nearer, perhaps, harmonizing all the facts in the history of the origin and progress of this disease, than any that has yet been presented to the professional mind.

It is well known that certain organic elements in a state undergoing decomposition or transformation, when placed in contact, under favorable circumstances, with other organic elements, alike or unlike in chemical constitution, excites in them a metamorphic action, the product of which is either identical in composition with the ferment, or a new compound is formed, differing in composition from the ferment.

Thus, yeast (gluten undergoing decomposition) excites in a solution of vegetable gluten, fermentation, and yeast is reproduced; putrifying animal substances in contact with fresh animal substances, excites putrefactive fermentation; and wood in a state of eremacausis excites the same decomposing action in sound wood placed in contact with it—products identical in chemical constitution with the exciter. Again, yeast in contact with a solution of sugar, excites the vinous fermentation; decomposing casein and other nitrogenous animal substances, excites the lactic

fermentation in sugar of milk—products differing in chemical constitution from the exciter.

Liebig explains, in a general way, the laws regulating the identity or non identity of the product of fermentation with the ferment, as follows:

"That a body in the act of decomposition (it may be named the *exciter*,) added to a mixed fluid in which its constituents are contained, can reproduce itself in that fluid, exactly in the same manner as new yeast is produced when yeast is added to liquids containing gluten. This must be more certainly effected when the liquid acted upon contains the body, by the metamorphosis of which the *exciter* has been originally formed;" (Liebig's Organic Chem. in its application to Veg. Phys. and Agriculture. Edited by Playfair, Amer. edition;) and when those constituents are not contained in the fluid a different product from the *exciter* must be the result, of course. Now all that remains is to apply this principle of fermentation, or the laws of *catalysis* (of Berzelius) to organic effluvia, and we at once deduce a theory of the propagation and spread of cholera, from city to city, and country to country in the line of human intercourse, accounting for all the phenomena in its march and development; and clear too of all the objections to the doctrine of contagion, or, the aerial conveyance of an exotic poison.

In order to illustrate our meaning in a few words, we will suppose that in the malarious district of the Delta or the Ganges, where cholera, perhaps, always takes its start, some combination of causes, existing nowhere else —(the nature of which it would be too hypothetical to attempt to define) excites a peculiar fermentation of certain elements of the miasm, spread over that region, the product of which is the cholera poison. From this region, we suppose a portion, enough to act as a ferment, or *exciter* as Liebig terms it, may be conveyed by ships, steam-

boats and other vehicles of commerce on land and water, and by armies, caravans, and individuals, to other districts and towns infested with organic effluvia, and by the law of catalysis or fermentation reproduce cholera poison. And thus, from city to city, and country to country, may it progress in its career of human destruction, so long as a portion *to act as an exciter* is conveyed in the midst of an effluvium with the *constitution and condition* necessary to its reproduction.

Now this theory is clear of one prominent difficulty that has ever presented itself in the way of the doctrine of contagious propagation.—That in the spread of cholera, it is not to be traced from individual to individual, even where it has owed its origin to the arrival of a vessel, army or caravan; but it usually attacks, simultaneously, a number of individuals in different wards or districts in the same town. It may also be remarked that if it be ascertained to be true, as has been alleged, that influenza, or other milder epidemics, are the forerunners of cholera, this fact will strengthen, rather than weaken the theory here suggested; for in the action of fermentation, the product of the metamorphosis depends upon the chemical constitution of the fluid made the subject of the change; thus, yeast excites in gluten a decomposition that results in the re-production of yeast, whilst it excites in a solution of sugar a fermentation that produces alcohol and carbonic acid. So may the cholera *diastase*, if I may be allowed the figure, when brought in contact with organic effluvia at certain periods, excite a fermentation, resulting in the production of a mild epidemic poison, and at a later period, when other elements, from, perhaps, extraordinary physical causes pervade the effluvium, so as to produce a *certain definite chemical constitution*, the fermentation will result in cholera poison.

If it should be objected that we have assumed too much in supposing that organic effluvia exist as organic com-

pounds, capable of undergoing a process of fermentation, we will appeal to the authority of Liebig for the reasonableness of such an assumption. That philosopher has offered a theory explaining the action of miasms and contagious poisons upon the vital animal fluids, based upon the same assumption of facts. His theory is that miasms and contagious matter excite in the blood a fermentative action resulting in morbid deleterious products. That in the case of miasmata the products are unlike the exciter, and hence no *miasm* is reproduced in the blood—that in the case of contagious matter the product of the fermentation is identical with the exciter and contagious matter is reproduced. (See Liebig's Phys. and Ag. Chem. by Playfair.)

Now as it is requisite for the exciter to be in a state of decomposition or fermentation, before it can produce it in another body, Liebig has evidently assumed that miasms are susceptible of, and do undergo fermentation. And all that astonishes me is that the fertile mind of the Giessen philosopher, that seems often to go in advance of, and anticipate the result of his own well conducted experiments, has not applied so simple a principle of philosophy to the *generation* of epidemic poisons, as well as their *action* upon the *animal fluids;* for if his theory be true, that miasmata do undergo a fermentation capable of exciting that action in the animal fluids, I do not see how we can escape the conclusion that one effluvium in such a state, will disturb the feeble balance of chemical affinities in another, or the same effluvium, resulting in a similar fermentation.

In conclusion we would remark, that the suggestions here preseuted are not offered as at all conclusive; but simply to draw attention to a law of chemical action, that may go far in elucidating, not only the spread of cholera, but also the origin and propagation of such diseases as are termed *common* contagious, as typhus fever, plague,

&c.; and may at length settle the doctrine, so seemingly compatible with philosophic simplicity, that there are no true contagions but those termed *specific*. Besides this view of the subject, if made at all *probable*, will guard city authorities against the heedless neglect of quarantine regulations, simply because the spread of a disease is not explained upon the principles of contagion.

Clarksville, Tenn., March 10th, 1849.

ART. III.—*A Case of Cholera, with Remarks.* By W. D. BARNETT, M.D. of Camden, Ark.

Camden is a flourishing town built about seven years since and contains a population of between 1000 and 1500. It is situated on the west bank of the Ouachita river, at the head of navigation. It affords excellent navigation and there is a direct and constant communication between this port and New Orleans. The town begins at the bank of the river, where steamboats are landed, and gradually ascends rising over a large hill in a westward direction. The country in this direction is high, dry and well watered by springs. Upon the eastern or opposite side of the river, for a number of miles, the country is low, marshy and interspersed with ponds.

This town, like Natchez, is divided into two parts; one lying upon the hill, the other at its base. It was under the hill, as it is termed, that the case of cholera occurred. The patient applied to me, on the morning of Feb. 7th, 1849, for advice concerning a diarrhea which he said came on him that morning, between midnight and day. The first evacuation, he stated, was very large, and caused considerable exhaustion. After this he went to bed, having but one operation from this time until sunrise, when he arose somewhat debilitated, ate a light breakfast and started to

his work, but did not continue at it long before the diarrhea and vomiting returned with greater severity. His pulse was weak, surface cool, no pain on pressure over the region of the bowels, the discharges whitish.

℞ Sub-muriate of mercury grs. 10, opium gr. 1, every two hours, until the vomiting and purging cease. Go home and keep in bed.

At 3 o'clock P. M. I was called to see him and found present every symptom of collapse. The extremities were cold, skin corrugated and livid, pulse imperceptible at the wrist, expired air cool, frequent vomiting and purging of rice water, frequent cramps of the lower and occasionally of the upper extremities.

I gave him calomel 20 grs., opium 1 gr. and camphor 3 grs. every hour; applied sinapisms to the extremities, over the stomach and bowels, and along the course of the spine. Between the doses of the above medicine take brandy with sulph. ether.

7 o'clock P. M. Patient has not vomited since 3 o'clock. All the other symptoms are present and aggravated. He was now ordered 40 grs. of calomel at one dose; discontinue the prescription of cal. opium and camphor. Take a mixture composed of aromatic spirits of ammonia, ether and camphor every hour; practice frictions on the extremi ties with brandy and mustard; then reapply the sinapisms which before had produced no effect.

10 o'clock P. M. Patient no better; every symptom continues; he has taken 140 grs. of calomel and stimulants in great quantities. He was now bled; about 4 oz. of dark, thick blood was drawn off. Boiling water, after the plan of MacIntosh, was poured upon the extremities; a vesicating plaster was placed along the entire course of the spine from the occiput to the sacrum, and also upon the extremities; continue brandy, ether, ammonia, and camphor every hour.

8th—8 o'clock A. M. Patient still pulseless at the wrist, has, in a great degree lost his consciousness; rice water

discharges continue—in a word, all the alarming symptoms.

Withdraw the stimulants in use, and give spirits turpentine 20 drops in camphor water every hour, as long as he can swallow; apply warmth by means of heated bricks to the extremities, and continue frictions.

12 O'clock. Patient shows signs of reaction, the last operation from the bowels being a little discolored with bile; the pulse can be felt at the wrist, heat of the extremities returning; hands and feet blistered from the effects of hot water last night; blister on the spine has drawn well.

3 O'clock. Decided improvement; the last alvine discharge showed that the biliary secretion had returned; a copious secretion of urine has taken place; lividity of the face and extremities vanishing; converses cheerfully and his countenance is becoming natural.

9th. Patient considered convalescent; the alvine dejections through the night continued thick and dark; appetite good. He continued to improve for several days and was able to leave his bed, when, the weather growing suddenly cold, and the poor man living in an open house, pneumonia supervened, and he died a week after he had been pronounced convalescent from cholera.

The question was started here when this patient began to recover, whether his was a case of cholera. I think there can be no doubt that it was. Other cases, similar in all their features and fatal in their results, had occurred in the neighborhood. The symptoms will at once be recognised as unequivocally those of cholera. It is worthy of remark that all the cases here appeared near the steamboat landing. Would they have appeared if there had been no communication with New Orleans? Upon this subject professional opinion is greatly divided, and I have no hope that I could harmonize the views of the different parties by any facts I might bring forward.

March 1st, 1849.

REVIEWS.

Art. III.—*A Practical Treatise on the Domestic Management and most important Diseases of Advanced Life:* With an Appendix containing a series of cases illustrative of a new and successful mode of treating Lumbago and other forms of Chronic Rheumatism, Sciatica, and other Neuralgic Affections, and certain forms of Paralysis. By George E. Day, M.D., Fellow of the Royal College of Physicians, and Physician to the Western General Dispensary. 1 vol., 8vo. pp. 226. Philadelphia: Lea & Blanchard. 1839.

"Human life is divisible into three great periods—those of growth, maturity, and decline." In each of these periods there is a difference, to some extent, in the various organs, and in the manner in which they perform their appropriate functions. Of the peculiarities which mark the epochs of growth and maturity we shall not now speak. Let us briefly examine those changes which occur during the progress of decline.

The circulation becomes languid, and hence venous congestions and visceral obstructions, with the various diseases attendant upon them, piles, apoplexy, paralysis, dropsy, gout, diseases of the heart, liver, bladder and kidneys, and chronic affections of the respiratory organs, are more frequent in both sexes: while in the female, diseases of the uterus and mammæ are developed. As age progresses, the energies of the nervous, circulating and muscular systems begin plainly to flag: the digestive functions are more and more impaired; chronic inflamma-

tions terminating in organic changes are oftener observed; the force of vital resistance is diminished, and hence we so often see senile gangrene: appoplexy and paralysis; comatose affections resulting from diminished nervous energy; disorders of the urinary apparatus in the male; and passive hemorrhages, marking a want of tone in the system are now more frequent.

As the individual grows older, the whole physical and mental powers rapidly decline. The sunken cheek, the pallid face, the dry and wrinkled skin, the feeble limbs, the tottering gait, the bended trunk, the tremulous tongue, and the

> "Big manly voice
> Turning again toward childish treble, pipes
> And whistles in his sound,"

proclaim the decay of the body, while the lacklustre eye, the expressionless features, the feeble manifestations of intellect, the failing memory, all bear witness that the

> "Last scene of all
> That ends this strange eventful history,
> Is second childishness and mere oblivion."

It may not be out of place to examine here some of the changes occurring in advanced life; for there certainly are at this time, in the most essential organs, peculiarities modifying greatly the due performance of their functions, and influencing the ordinary progress of disease and its proper treatment. Our author considers at some length "the alterations in structure and function of the organs most liable to be affected in old age." Let us briefly and succinctly notice some of these: and

1. Of the *respiratory organs* and their functions. The walls of the chest are altered in form—the transverse and vertical diameters are diminished, and there is anterior curvature of the spine. The intercostal spaces are lessened and occasionally even the ribs unite—the carti-

lages of the first two are commonly ossified. The form of the diaphragm is changed; nor do the lungs remain unaffected. The position and direction of the fissures are altered: the air cells are enlarged; crepitation on pressure is no longer heard; the organs themselves are smaller than in the previous periods of life. They may be livid and very flabby, so that their natural conical form is lost, while they are incapable of being much increased in size by inflation and contain only a very small portion of that fine vascular tissue so perceptible in the adult lung. A black deposite is often found in them, due, perhaps, to the stagnation of blood in the pulmonary tissues, and producing, when abundant, obstructions to the action of the capillaries and bronchial tubes—which latter are also lessened in size by hypertrophy of their fibrous structure, chalky deposits in the submucous tissue, &c. The absorbents are diminished. The thyroid and cricoid cartilages as well as the rings of the trachea and bronchi are often ossified.

These changes in the structure of these organs necessarily modify the performance of their functions. Hence we see that the movements of the chest are less extensive and more irregular; the diaphragm is almost the exclusive agent in respiration; the diminished size and expansive power of the lungs and the decrease of their vascular tissue no longer allow the free aeration of the blood; less oxygen is taken in and less carbon thrown off. The quantity of aqueous vapor charged with organic matter commonly evolved from the lungs, is now less in amount because of the altered condition of the vascular tissue and mucous membrane—and hence the lungs have a tendency to become edematous.

2. Modifications in the nervous system and its functions. While the skull is considerably diminished in thickness, the dura mater adheres closely to the bone; the arachnoid and pia mater become thickened, tough and rather opaque,

and not unfrequently calcareous deposits, or vesicles filled with fluid are found on the surface of the latter; there is usually a considerable quantity of fluid in the sub-arachnoid space and the ventricles are nearly always more or less distended by an effusion varying in quantity and appearance. It has been suggested (first we believe, by Dr. Todd, *Cyclopedia of Anatomy and Physiology, vol.* 3,) that this increased amount of fluid within and around the nervous center, though it be the result of a change which depresses the general nutrition of the organ, is yet *conservative* in its influence. The brain is smaller in size; the convolutions are shrunken and the sulci between them increased in width, while the external layer of gray matter is decidedly thinner than in the period of maturity. Its quantity of blood is diminished and the vessels become thickened and lose their contractile powers.

The special senses, so intimately connected with the nervous system, also undergo many changes.

The fluids of the eye are lessened in quantity; the cornea becomes flattened—the *arcus senilis* makes its appearance—the iris and choroid coat turn paler and the pupils grow smaller; the lens flattens; the vitrous humor is less transparent; the lachrymal puncta frequently close—when there will be a constant flow of tears.

All the structures of the ear are hardened; the bones unite; the tympanum becomes tense; the fluid of the internal ear is lessened in amount and the auditory nerve is harder and smaller thsn in the adult.

The tongue is altered. The Schneiderian membrane is dry and secretes but little mucus. The epidermis is rough, dry and withered.

The functional changes are equally well marked. The senses become blunted; the perceptions are less keen; the energy of volition is enfeebled; and irritability and sensibility are much diminished. Sympathy is greatly impaired, so that the symptoms of a given disease are more

strictly confined to the suffering organ and are oftener masked and obscure. "A lung," for example, says our author, "may be perfectly impermeable or may even be disorganized, yet the heart may afford no indication either by its force or its frequency that one of the most essential of the vital functions is fast ceasing."

3. The *digestive organs* and their functions. The mucus membrane of the stomach and intestines is much thickened, and thus diminishes their capacity; the muscular coat is often completely atrophied; the villi and mucus follicles are shrunken, and but little mucus is secreted. The imperfect mastication and the admixture of saliva, gastric juice and bile, modified doubtless by age, added to this condition of the stomach will abundantly explain the diminished nutrition of old age. The dyspepsia of this period of life is owing in part to these causes, and in part also to the diminished, nervous energy.

4. *Of the organs of circulation.* The heart generally diminishes, but occasionally owing to the resistence offered to the prompt escape of the blood, increases in size. The free margins of the valves are thickened; deposits of calcareous matter are found in the arteries; sometimes they are completely ossified; the walls of the capillaries are thickened, hindering the free passage of the blood from the arteries to the veins, and in this way overcoming in a large measure the propelling force of the heart and arteries, gives rise to congestions and brings about a tortuous and varicose condition of the veins.

The action of the heart may be weak—when dropsical effusions and a general failure of all the functions of the body will result—or inordinately strong, when the smaller blood-vessels of the brain particularly, are apt to be ruptured and thus produce appoplexy and paralysis.

An important practical deduction is drawn from the diseased condition of the arteries in old age, viz:—that the *pulse should always be counted at the heart.*

The alteration of structure and function in the *urinary apparatus*, we will not now notice. We have already exceeded our limits.

Such organic changes cannot fail to modify disease and influence materially the treatment. It is the object of the author of the volume before us, to discuss both these points. A work of this kind was certainly needed, for with the single exception of Canstatt, no writer, so far as we now recollect, has given to the world a systematic work on "the *diseases of old age.*" A multitude of original and valuable monographs on individual points connected with this general subject have appeared at different periods, but even they are "scattered among the French and German periodicals" and consequently inaccessible to most English readers.

"I wish it to be distinctly understood, "says the author, "that it has not been my object to write comprehensive essays on these various diseases. All that I have attempted to do, has been to explain the modifications that advanced life impresses on the different symptoms, and to point out the peculiarities in the mode of treatmemt that should be adopted during the declining period of the vital power."

This task has been judiciously executed, and we trust the work will have a circulation commensurate with the importance of the subject and the creditable manner in which it has been completed.

The Appendix contains a "series of cases illustrative of a new and successful mode of treating Lumbago," &c.

This method "consists essentially in the instantaneous application of a flat iron button, gently heated in a spirit lamp, to the skin." This button is about half an inch in diameter and a quarter in thickness, and is connected with a small wooden handle by an iron shank curved nearly at a right angle, at about half an inch from the upper surface of the button.

The button is held in the flame of a spirit lamp for a few seconds (until the curved portion of the shank feels uncomfortably warm to the fingers) and is then rapidly and lightly drawn over the affected part. When properly performed, this operation never vesicates, but produces only a slight redness.

The following cases are selected as fair specimens from a number detailed in this part of the work.

"CASE I.—J. A., aged forty, an omnibus conductor, of healthy appearance, and good muscular development. Had frequently suffered from lumbago for several years past. Caught a severe cold in February, but continued his ordinary avocation for some days, till one morning, on attempting to rise, the pain was so severe, that, to use his own expression, he 'was obliged to hollow out.' He then became a patient at the Western General Dispensary, and remained for upwards of two months under the care of one of my colleagues, who found all the ordinary treatment unavailing in removing the lumbar pains, and knowing that I was engaged in investigating the therapeutic value of the thermic treatment, kindly consented to his being transferred to me. After two applications of the iron at intervals of two days, he said he felt himself fit to resume his work. I met him about a month afterwards, when he told me he had felt no return of the pain since he had previously seen me."

"CASE X.*—'Early in the month of May, 1845, I was rather suddenly attacked with severe pains in the right thigh, extending from the hip to the knee. Having never suffered from any similar affection, and generally having good health, I hoped this pain would have yielded to rest, and the warm bath, which last remedy I had recourse to after a week's suffering. This was not the case, I only obtained temporary relief; the pain now became more fixed, and was so increased in intensity, that I could not walk the shortest distance without being obliged to stand at every twenty or thirty paces to obtain ease,

* The patient in this case was a medical man and tells his own story.

which I did the moment I stopped. The entire thigh participated in the affection, but I felt the pain principally along the course of the sciatic and anterior crural nerves; I could not endure to lie on the affected side, as doing so considerably increased the pain. I continued to suffer in this manner for a period of six months, during which time I had recourse to the usual remedies of warm baths, frictions, strong stimulating liniments, hyd. potassæ and morphia in combination, tinct. aconit., electro-magnetism, and all without any effect more than temporary relief. Changes of temperature produced very little, if any effect. I then applied to Dr. Corrigan, who immediately applied the hot iron, from which application I received considerable relief, so much so, that in two days I was more free from pain than I had been from the entire period since the commencement of the attack. The first day that the last remedy was tried, I had a distance of about half a mile to walk to Dr. Corrigan's house, which occupied me nearly an hour, being obliged to stand at least fifty times to obtain relief. I did not go to Dr. Corrigan until after a week, and on my second visit I was able to walk the same distance without once resting. After about eight applications of the hot iron in the space of four or five weeks, I became perfectly free from pain. now being able to walk a considerable distance without much inconvenience, I discontinued my attendance on Dr. Corrigan. Several weeks passed without my being at all troubled by any return of the pain; but within the last fortnight I have had some temporary attacks. I think it right to say I feel satisfied that if I had continued the application of this remedy some time longer, the cure would have been complete.'

"I trust that the cases I have given will be regarded as furnishing sufficient evidence of the singular efficacy of the thermic treatment in a class of diseases which are usually regarded as of a most intractable and obstinate character. I may add that I have successfully applied it in spinal irritation, in various painful manifestations of hysteria, and in many forms of neuralgia; and I cannot conclude without again expressing my conviction that the practitioner who will give the thermic treatment a fair trial, will not readily abandon a remedial agent by which human suffering can be so easily and rapidly alleviated."

This certainly is success as unusual as it is flattering. This mode of treatment was first introduced to the notice of the profession by the late Sir A. Carlisle, some twenty-five years ago, but has never been used to a very great extent.

Whether or not further experience will confirm the high estimate set by Drs. Day and Corrigan upon this "Thermic treatment," as it is called, of these forms of disease, of course cannot now be be told. The matter is worthy of a more extended trial. R. J. B.

Art. IV.—1. *The British and Foreign Medico-Chirurgical Review.*

2. *The London Lancet*, for January and February.

3. *The true Pathological Nature of Cholera, and an Infallible Method of treating it.* By George Stuart Hawthorne, M.D.

4. *On the Cryptogamous Origin of Malarious and Epidemic Fevers.* By J K. Mitchell, A.M., M.D., Professor of Practical Medicine in Jefferson Medical College. Philadelphia: Lea and Blanchard. 1849.

In our April number we endeavored to give a brief historical sketch of cholera, and to notice its leading phenomena for the purpose of ascertaining its cause, in order to pave the way to an inquiry as to the best sanitary regulations for its prevention. In the present article we shall examine those measures that have been adopted in various parts of the world, as the best means for arresting the ravages of cholera, and shall enter upon an investigation of the most philosophic method of treatment for the disease.

We think we have clearly established the fact that cholera is exclusively a malarious disease. Of the truth of

this view we have no kind of misgiving or dubiety, and if it be true, the means for preventing the ravages of cholera are very accessible to the public. A long series of observations, made in various parts of the world by a great number of philosophic physicians, have clearly established the operations of malaria, and the unvarying laws of that agent of destruction, and by taking advantage of this knowledge, we shall easily control its evil effects.

Among the important and essential sanitary measures for preventing the production of malaria, cleanliness stands conspicuous. Nature has written so legibly on the great value of cleanliness as a hygienic agent, that proof of the fact would seem to be almost unnecessary. But daily observation tells us, in language not to be misunderstood, how little the dictates of nature on this subject are heeded, and how constantly men appear to choose disease rather than health. The ravages of cholera have impressed these things, however, so forcibly upon the mind of the world, that there is reason to hope that greater attention will be paid to the subject of cleanliness hereafter. An immense improvement has taken place throughout England in all things pertaining to public health, and many places formerly noted for their accumulations of filth, have, under the influence of drainage, good sewerage, and an enlarged and scientific view of the subject, become clean and healthy.

Throughout the history of epidemic cholera we have found it hanging its dark pall over the abodes of filth, and expending its energies of destruction upon squalid wretchedness and discomfort, most generally. Wherever malaria most readily forms, there cholera commences its operations, and lingers amidst the atmosphere that is vitiated by the combined action of solar heat and moisture in the decomposition of vegetable matter. We trace Cholera, by its usual history, in the Gangenetic Delta, and especially in the tracts of country bordering on the Hoogley and

Jellinghey rivers. Its ravages along the banks of the Ganges and its tributary streams were awful, and in the summer season malaria usually shows itself in these regions upon a gigantic scale. Thus we find epidemic cholera in Delhi in July, in Bombay in August, Madras in October, and Ceylon in December. It commenced in Astracan in September, Orenberg in July, and at Astracan again in the same month. In September we find it in Moscow, in June at St. Petersburg and Archangel, in Riga and Dantzic in May, in Hungary in August, in Constantinople in July, in a portion of Greece in November, in Berlin in August, Vienna in September, and in Hamburg in October. In the Spring of 1832 cholera showed itself in Dublin, Belfast, Cork and other places in Ireland. In June 1832 it ravaged Montreal and Quebec, but had previously showed itself in many villages in Canada. In July it assailed New York; in August it was in Philadelphia, Baltimore, Washington, Cincinnati and New Orleans. Boston being almost entirely free from malaria has been almost untouched by cholera, and a similar exception has generally been observed throughout New England. Naples established the most rigid quarantines, and maintained them with sleepless vigilance, but in 1836 cholera showed itself in the malarious portions of the town, and ravaged them exclusively. Rome had a visitation in 1837, and Malta about the same time.

A critical examination of all the circumstances connected with these visitations of cholera indubitably establishes the existence of circumstances favorable to the production of malaria, as the immediate precursor of cholera, and to this fact, we do not know of the existence of a solitary exception.

On this subject, Dr. John Bell, who is very favorably known to the medical profession by his various and valuable publications on medical science, and who is an opponent of the doctrine of malaria, holds the following clear and forcible language: "The chief home and seat of

cholera is in low, damp situations—on the banks of rivers, or near pools and ponds of water,—or which are encumbered with vegetable remains, and filth of any kind. Those parts of cities thus situated and circumstanced, have always suffered most, and some times have been the exclusive seats of disease. In all the chief cities of Hindostan, as in Calcutta, Madras, Bombay, Seringapatam, &c.: of Russia, as in Moscow, St. Petersburg, Astracan, of Germany, as in Vienna, Breslau, Berlin, Hamburg, of France, as in Paris and other places; of Great Britain and Ireland, as in London, Sunderland, Newcastle, Gateshead, Musselburgh, Dublin, Cork, &c., this fact has been placed beyond a doubt." The varying phases of seasons have been conspicuous in the history of cholera. In most places where the disease held a heavy and an unexpected hand, an unusual series of meteorological phenomena showed itself. Thus, in Lexington, Ky., a place celebrated for its healthiness, we find as the precursor of cholera in 1833, a state of things never known there before or since. In the midst of an unusually high temperature from early in May, up to the 4th of June there was almost a constant fall of rain, and early in June the cholera commenced, and raged until the hot dry weather in July and August dried up the moisture from the ground. Large cities that are unhealthy in wet summers escaped the cholera for years under the sanitary influence of unusually dry summers, and places that are sickly in dry summers, escaped by the fall of sufficient rain to cover the marshy surfaces of pestilential pools with water. Dr. John Bell says: "Many of the British physicians and surgeons in India describe frequent and great deviations from the usual order of the seasons before and during the existence of cholera; and they speak of unusually violent thunder-storms, 'violent squalls,' and storms of wind and rain."

In almost every instance we have examined, cholera

commenced its ravages in the midst of filth, and has almost always lingered in such localities. Where there are exceptions to this fact, we shall find an explanation of the exception in some of the laws of malaria.

In the close of our former remarks, we referred to the invaluable lessons, given by nature in favor of cleanliness, and we shall now proceed to a detail of some most interesting facts on this subject. They speak a lesson that cannot be too strongly impressed upon the mind. Chambers, in his *Edinburgh Journal*, says: "Who that surveys the most ordinary landscape, unfitted perhaps to inspire the poet or awaken the imagination of the romancist, can point to any stain upon its smiling face? The fresh raiment of the fields, the hard features of the rocks, the stream descending in clear, sparkling, laughing, tumbling waters, or stealing in slower measure through the plain; the spotless aspect of the driven snow, the smooth laid surface of the sandy shore, the deep pellucid waters of the great ocean—these are all *clean.* There is no spot of filth to be seen in them, except where the purificatory process is actually going on. Then the heavens assume what we might perhaps consider a filthy aspect—the sky becomes clothed with sackcloth, the hills disappear in murky fogs, the mountain stream comes down in floods of mud, hurling along heaps of degraded materials; the sea casts up its mire and dirt, and at these times the law appears suspended; but, on the contrary, this is the very process itself by which the general result is obtained. In a little while all this seeming disorder ends, and the landscape only looks cleaner than ever when it is over. A vast practical benefit results from a chain of circumstances apparently so trifling as the gathering and discharging of a rain-cloud. All the impurities which a state of change necessarily entails, are thus removed; not only is the face of the earth renewed, and the crowding vegetation which luxuriates upon its fertile bosom reinvigora-

ted, but is also washed *clean*, exposed afresh to atmospheric influences, while the gatherings of previous weeks are all swept down and deposited out of sight beneath the blue waves." * * * * * * "At first one would believe it almost impossible that a blade of grass, in immediate proximity as it is to a filthy soil, could be kept clean; the dirty splashing of a shower, or the down pressing influence of a breeze, would suffice to take all the beauty out of an artificial grass blade. How different the result! Pick a handful of the tender herb from the worst field, the very slushiest meadow, and it is found clean, fresh, shining, without a spot of dirt or any such thing, so that it looks as though it had just left the hands of the Great Artificer. This result is principally due to the lustrous coat of silex with which the blade is provided, and the polished, glittering surface of which denies attachment to a spot of dirt. Grass, however, is by no means the only class of plants furnished with a similar provision, a glazed surface, evidently intended principally for this end." * * * * "While we survey all nature, we may fully join in the expressions of Dr. Macculloch, and say that it presents that 'universal look of cleanliness and neatness, which is as striking as if there was a hand perpetually employed in no other office, preserving an order, which we cannot maintain in our possessions without constant labor.'

"Few minds will be found, we believe, which will resist the evidence here adduced to the existence of a law of cleanliness in creation; but if we turn to the animal kingdom, the testimony becomes quite conclusive. Many precautions against dirt in this, as in other divisions of nature, are *passive*. No one that looks upon the glittering corselet of a cockaroach, inhabiting, as it does, the dusty cracks and crannies of our kitchen floors all night, and spotless as it is, can deny the conclusion, that there is an admirable proviso against filth in this insect. And the

same may be said of the metallic coated family of beetles; whose burnished backs repel alike the minutest speck of dirt or the heaviest peltings of a summer shower; and the wing-covers of these beautiful insects are, without doubt, while they are the shields, also the dirt-repellers of the delicate, gauze-like wings so artfully folded up beneath them."

"We probably judge rightly in supposing that the *active* demonstrations of cleanliness are the most interesting, and are likely to be the most impressive." These are made under the influence of processes of *combing, brushing, licking and washing*, and are so interesting in their character to those whose great province and pleasure it should be to observe very carefully all natural phenomena, that we feel that there is no necessity for an apology for a minute detail. If no direct lesson be taught of the great value and extent of the law of cleanliness, these details may awaken in the mind of the physician a sense of how much valuable information may be gleaned by a close observation of the walks of creation in all the departments of his profession. From an extended survey of animal life Cuvier was able to deduce that great and important law, which is of such constant use to the physician who knows how to apply it:—that animals possess vigor in a direct ratio with the amount of oxygen they consume. Nor is there any fact in nature that may not be useful to the physician. He should not permit any of the processes of nature to be too high for his reach; none of them should be looked upon as too humble for his investigations. Let us now look at some of the operations of nature under the law of cleanliness, and have our minds impressed properly with the value of this great hygienic principle.

On the subject of *combing* among the insect tribes, Chambers says: "One of the commonest and most curious examples of combing, for the purpose of cleanliness, may be observed by closely watching a common garden spider.

These insects are particularly exposed to dirt; the dust of the air, particles of their webs, or defilement from their prey, become entangled in the hairs of their legs, and would probably both materially add to the discomfort and to the disability of the insect for its active life, were they not removed. The wants of the creature have not been forgotten, and its mouth is furnished with serratures like the teeth of a comb. The insect puts its leg into its mouth, and gradually draws it through these teeth, so as entirely to comb off every particle of dust and dirt, which it then collects into a pellet, and carefully tosses away! In order that this operation may be thoroughly done, and no part of the leg escape, a little curved hook is added, which bends down over the edge of the comb, rendering the escape of any part of the leg impossible. This curious fact was first noticed by Mr. Rennie, who mentions it in an interesting paper published at the Royal Institution. "The bird well known as the fern-owl, or night-jar, has an instrument on purpose to effect this object, a real comb. One of its claws differs from all the rest in length, and in the remarkable fact of its being serrated or toothed like a comb; and such is the intention of the contrivance. It was long mistaken for an instrument with which to wound its prey. Other naturalists perceiving its resemblance to a comb, and considering the whiskers of the bird, conceived that it was intended to comb the bird's whiskers. But against this ingenious hypothesis it must unfortunately be mentioned, that some of the species possess the comb without the whiskers, in which case its function must be, on that supposition, unnecessary. The celebrated Alexander Wilson, the ornithologist of America, decided the question by finding in the "Whip-poor-will," a bird belonging to the same group, and the inner edge of one of the claws of which is also pectinated, portions of down adhering to the teeth. He therefore very rationally concludes that this instrument is most "probably employ-

ed as a comb to rid the plumage of the head of vermin, this being the principal, and almost the only, part so infested in all birds." In another portion of that splendid work, he mentions that the night-heron, or "qua-bird," possesses also a pectinated or comb-like claw, which has from thirty-five to forty teeth, and is used for a similar purpose to that in the last case mentioned.

"Under the head of combing, we are doubtless to include what is called the 'preening,' or, more correctly perhaps, the pruning of birds. Probably no creatures are more attentive to personal neatness than the generality of birds, and this they principally effect by embracing their feathers with the beak, then drawing the beak to the extremity, by which means all dirt and soil are speedily removed. In this healthy exercise it has been well said they have been 'commanded to delight,' for while it is a sanitary act, it is also one which seems to afford them great gratification. Were it not that this beautiful part of creation is always thus employed, what filthy objects would many become who have to seek their food in mud or in the earth! But, as Drayton has said, they are always

Pruning their painted breasts;

and thus under the most disadvantageous circumstances, the lustre of the bird of paradise, or the snowy purity of the swan, is never to be seen dimmed by dust or defiled by mud. Still, under the "combing" we may mention the most familiar example of all, the common blow-fly. Who that has watched the ludicrous care with which this insect attends to its personal appearance, has not been reminded of human actions? When we remember our own maneuvers with the clothes brush, and compare them with those of the fly dusting *his* jacket, the action has all the oddity of a caricature. How carefully he sweeps down the wings, and then his eyes and head, as if

he were on the very point of presenting himself at court, or to the consideration of some fair friend! The microscope reveals his instrument. It consists of two rounded combs placed at the bottom of the foot, and consisting of two or three rows of teeth, somewhat like a curry-comb; and this contrivance perfectly removes all extraneous matters, so that the cleanly insect flies off a complete beau, if luster and absence of dirt would constitute one.

"*Brushing* is the next division. The bee gives us a good example in point. This unwearied insect, in her perpetual search for honey, has to penetrate many flowers which abound in pollen or farina—the light delicate powder produced by the anthers of flowers. When she comes home, she looks quite an altered character, all dusty as she is with yellow pollen, so that she could scarcely be recognized as the modest brown insect which the morning saw depart from the hive. The principal cause of this is the hairiness of her body, the pollen particles sticking fast in the pile. The insect stops and raising her hind-legs, which are set with thick hairs, she brushes every particle clean off, but as the pollen is valuable, she does not throw it away; on the contrary, she kneads it into little masses called bee-bread, and then enters the hive, having stowed it away in certain little pockets behind. Many spiders are provided with brushes of close-set hairs which effect the same purpose; and the foot cushions of the cat must be considered as instruments of similar intention. We are often presented with examples of *licking* as an operation of this kind. The cat takes incessant pleasure in it, and is very particular about her children too, whom she licks continually when they are young. Other animals have similar propensities, and hence arose the popular myth about the bear licking her cubs into shape, when she was, in fact, only giving them a maternal purification. Insects are equally fond of it, and repeatedly lick one another. By the same means they free

their eggs or pupæ from dirt. Every one must also have witnessed, again and again, the scrupulous care with which many animals *wash* themselves. Birds are very fond of this practice, and perform the operation with a skill which evidently manifests that the instinct is heaven-taught. To get a mind-drawn picture of this feat, let the reader think of the maneuvers of a duck at a pond, or the more stately performance of a swan in a stream.

"One of the most curious illustrations our subject admits of was discovered by the talented entomologist before mentioned. It is a special apparatus for cleaning a very peculiar insect. At the bottom of a hole near an old tree Mr. Rennie found a curious grub, which he had never seen before. Taking it home, with a few small snails found in the same place, and watching the creature, he found it employed in a very anomalous manner. Its tail was turned up, and bent over its back, and every now and then removed again. For some time the object of the creature in this occupation was a complete mystery. At length the tail was examined, and the most singular apparatus was there found. In shape it was somewhat like a shaving brush: under the microscope it was found to consist of a double row of white cartilaginous rays which were retractile at the will of the creature, like the horns of a snail. In the interspace was a funnel-shaped pocket, which turned out to be a sort of little dust hole. Now this was its manner of operation: the tail was bent up over the back, and applied to any part of the insect's body; the creature then caused the rays to retract, so as to make the whole act somewhat like a boy's sucker, thus drawing off every particle of dust and dirt from its glossy skin. This done, they were stored up in the little pocket until it was quite full, and then the insect, by a vermicular motion of the same instrument, caused the collected matters to be expelled in the form of a little pellet, which it was careful to deposit out of the way.

"Not only are animals commanded by the author of their being to pay this regard to their personal cleanliness, but the homes of many among them are patterns of neatness and order. How often may we be amused at the diligence of the spider in keeping her net clear of the smallest particle of dirt! What lines will she not cut away and lay down again to secure this end! What a miracle of skill and neatness is a bird's nest, and how assiduously the parent birds remove every impurity from it! Even the proverbial filth-lovers, swine are uncommonly particular in their homes; for it is well known that no creature is so anxious to have a clean and comfortable bed. And very probably the dirt-encasing gambols of these animals are to be excused on the score of an irritating cutaneous affliction, or are intended to resist the stings of insects. Let us hope as we close this short article, that the lessons it is calculated to convey will not be forgotten. Let our poorer classes take just shame to themselves to be alone in their filth. While every domestic animal teaches wisdom, and while all creation exhibits the same pervading principle, will they be content to run the risk of opposing a plain precept of nature? Theirs is not all the blame, when we remember that even statesmen are only just alive to this oldest of all truths, coeval with the very institution of the present scheme. When it has been our lot to visit dirty habitations, and when we remembered the wide-spread lesson taught us in creation, often have Heber's words risen to recollection with a sigh, reminding us

'That only man is vile.' "

We hope that these valuable and interesting truths will not only show the importance of cleanliness, but conduct to the observation of other natural processes scarcely inferior in value and interest. Of all hygienic measures for the prevention of cholera none are as useful and essential

as cleanliness, and every possible method that may enforce this on the mind, will do much towards the mitigation of human suffering. If the laws of cleanliness be strictly enforced, the laws of malaria would be of small importance. Cleanliness in the person, in the habitation, and in all contiguous grounds is of the last importance as a preventive measure against cholera, and an extensive array of other diseases. Cleanliness of the house and grounds guards against those impurities that produce the long catalogue of malarious diseases. Cleanliness of the person, under the influence of daily ablutions with clean water does much, not only towards the prevention of many diseases, but for the mitigation of those that are inevitable. Sir Astley Cooper bears impressive testimony to this fact in his lectures. He says, that by daily attention to the spunging of his body with cold water, under all the severe exposures of a student's life in the damp dissecting rooms of London, and those arising from an arduous and extensive practice of his profession, he had passed thirty-years without the sickness of an hour, and his health continued good almost to the termination of his life. Can we then be too strenuous in our exhortations on the importance of this great sanitary measure? Could we well have said less than we have upon a subject that guards our health and protects us at small cost from a series of measures that are troublesome, expensive, complicated and partial in their action? The inspiration of the Bible is most impressive on this subject, and is forcible in its denunciations of uncleanness and pollution. The inspiration of observation showed Mahomet the value of cleanness, and he made it a prominent part of his institutions. Medical observation has recorded the result of his laws. Wherever cholera prevailed in the dominions of the Crescent, it was observed that the Musselmen, who are strict in their observance of the precepts of the Koran in regard to ablutions escaped the

disease, while those who were less strict in their reverence for them suffered severely.

If, however, from causes beyond individual control, it is found impossible to create such a state of cleanliness as to give perfect confidence, we must turn our attention to the laws of malaria, and from them establish such sanitary measures as will perfectly arrest the march of the disease. No half-way measures must be thought of. The attempt to guard against malaria must be perfectly thorough, or through some neglected crevice we shall feel the approaches of the unwelcome guest, while we are lulled into a false security.

The various physicians throughout the world, and nearly all Boards of Health, upon the testimony of physicians on the spot, have borne strong testimony to the value of drainage as a means of preventing cholera, and its kindred diseases. If what was intended for a drain becomes a stagnant ditch, that which was made for the promotion of health, becomes a source of pestilence. The sluggish stream that moves its lazy waters along sedgy banks is a source of evil, while the bubbling brook that runs merrily over its pebbly channel as it moves its limpid waters towards the ocean, is a purifier, and thus becomes a source of health. No stagnant pools of water should be permitted to exist in the neighborhood of human habitations. If their exhalations do not rise at all times into that malignancy that cuts the cord of life in a few brief hours, they do not the less certainly undermine the foundations of vitality, and slowly and surely they "break the golden bowl, and the pitcher is broken at the fountain." Yet how often do we see the pool at the door, permitted year after year to sow its seeds of pestilence in the family, giving rise to a long train of evils that is the result of a violation of the plainest dictates of common sense? The philosophic and honest physician will always feel himself bound by his duty to that profession, whose first great

object is to do good, to urge the prompt removal of all sources of malaria. Thorough drainage removes one of the most essential elements of that agent of disease and death, and becomes thereby a most important sanitary measure. We cannot control solar temperature, nor the decomposition of vegetable matter, but we can deprive the latter of that amount of moisture that makes its decomposition pernicious. There are times when the conjunction of solar heat and moisture for action upon masses of filth is so apparent that if attention were directed to the approaching danger, all the evils might easily be diverted. Thus, for instance, if, in 1833, the people of Lexington, Ky., when a high temperature with an unusual amount of rain showed itself, had improved the drainage so as to carry off rapidly the water that formed in pools in the flat part of the town, or had covered with lime the masses of filth that had been accumulating for years in that portion of the city, nearly all the disasters of cholera might have been averted. The same facts were developed in New Orleans in December, January, and March and April of the present season. These are instructive lessons that should not be forgotten for the future. Defective drainage in a town is an evil that cannot be too speedily removed. The pernicious effects of malaria are not confined to sweeping and fearful visitations of cholera;—the latter are fortunately but occasional exhibitions of the evils of that morbific agent; but wherever malaria is permitted to form it is a continual source of disaster. The liver and spleen become effected under its mildest production, and life is made an insupportable burden. In healthy countries the average of human life is fifty years, but in malarious regions this average dwindles down to twenty-five years, in Holland, to twenty years, in portions of France, Spain and Italy, and to ten years in parts of Africa, and in the East and West Indies. The ravages of cholera over the world have caused a great deal of investigation into this subject

and lasting good has been done in the improvements that have taken place in many regions that have been scourged with the pestilence. But it should never be forgotten that the presence of filth and moisture may be productive not only of cholera, but of various other forms of disease that are scarcely less destructive to life, but which are slower in their ravages. These facts should impress the mind with the importance of cleanliness and drainage as sanitary agents.

In order to understand thoroughly a proper system of sanitary measures for protection against visitations of cholera it is essential to have an intimate acquaintance with the laws of malaria, and to them we shall now address our remarks.

Let us not be misunderstood so far as to have it supposed that we think rains essential to the production of the requisite moisture for malaria. We wish to present the subject in all its possible forms, and as rain is the most general furnisher of the necessary moisture we have presented it prominently. But rain may be a protective agent sometimes against the effects of malaria. The pernicious effects of malaria are felt in the Campagna di Roma during excessively dry weather, and heavy rains would prevent them, by washing out the pestilent ditches and drains that are so injurious to life, or by covering up the decaying vegetable matter with water, thereby protecting it from solar heat. Thorough dryness prevents the decomposition of all kinds of matter, and this important truth should not be neglected in the construction of a system of sanitary measures. But there are cases where it would be equally important to remember that excessive moisture also prevents putrefaction. This latter fact explains the reason why malarious disease sometimes affects the inhabitants on the crown of a hill, while those residing in the flat below are exempt. The water rolls down the sides of the hill and accumulates below in sufficient quan-

tities to prevent the decomposition of vegetable matter, while enough remains on the crown of the hill to produce the pernicious effect.

The topography of a place has much to do with its relation to malaria. In a very wet summer extensive districts become unhealthy that are uniformly healthy in dry summers, except in the vicinity of swamps, ponds or water courses, and these unhealthy localities of a dry summer become healthy points in a wet one, when the districts that are healthy in a dry summer become sickly if that season is a wet one. These facts were established on an extensive scale, in this country, in 1822 and 1823. Dr. Cooke says that in the excessively dry summer of 1822 the valley of the Shenandoah in Virginia was generally healthy. The few places that suffered were near marshy grounds, or rivers, which in that arid season were almost dried up, leaving extensive flats covered with an abundance of the vegetables which grow in water, exposed to the action of the sun. The highlands about the Blue Ridge were healthy, and the parts about the marshy borders of rivers alone suffered. In Pennsylvania, about Harrisburg, July was wet and sickly, but the weather becoming hot and dry removed the moisture and stopped the sickness. The summer was so dry that the Ohio river became lower than it was ever known before. The water was nearly stagnant, "resembling a big lake more than a river, and covered with a mucous scum or froth. Disease was confined to the marshy districts." Louisville, Ky., was then a town of swamps, and was the scene of a desolating sickness. These are mere glimpses of the state of things that generally prevailed in the dry summer of 1822, but the summer of 1823 being a wet one, made a great change in the operations of Malaria. "The rains were excessive in Pennsylvania, Maryland, Virginia, Ohio, Mississippi and Alabama, and the autumnal epidemic was very severe in all these states. At Natchez the year 1816

was very dry and healthy, 1817 wet and sickly, 1818 dry and healthy, and 1819 wetter and more sickly than in 1817."

These facts are sufficient to show the varying phases of heat and moisture that must be taken into consideration in the successful execution of sanitary measures.

Masses of vegetable matter should never be permitted to decompose in the neighborhood of habitations. They may decompose in hot, dry weather without any evil effect, but if even small quantities of rain fall in this state of things a sudden and alarming pestilence may spring up. This was the case in New Orleans in December 1848 and January of the present year. There were great accumulations of vegetable filth, the thermometer ranged at 80° and 85°, and when the requisite moisture was supplied an alarming pestilence of cholera showed itself. This continued until cold weather checked it, and now, since the weather has become warm again, the cholera has resumed its ravages. In 1832, in the early part of the fall we had no rain in Louisville, and September was cool, but the first four days of October were very hot, attended with rain, and on the 4th day of that month the cholera commenced its ravages in this city. There had been sporadic cases in July and August, but in October the only faint resemblance we have had to epidemic cholera in Louisville showed itself.

Lancisi noticed the evil effects of clearing timbered land in his day, and numerous facts since that time have corroborated his observation. The city of Philadelphia was once protected from the exhalations of some neighboring marshes, by a forest growth between the city and the marshes; when this timber was removed, the city was afflicted with pestilences of different grades, and yellow fever among them, until the marshes were leased out, drained, and filled for the purpose of converting them into an immense vegetable garden. This changed the malari-

ous topography, and Philadelphia has never been seriously desolated since with yellow fever. The Cholera in Philadelphia, in 1832 was mainly confined to the malarious district in the neighborhood of the Schuylkill. The season was then, as in Lexington, Ky., the year after, propitious for the production of malaria. Sydenham noticed in his day, when he was altogether ignorant of the cause of cholera morbus, that it came in the summer as certainly as swallows did. In other words it made its appearance at that season of the year when malaria is most certainly produced. The meteorological tables kept by Cleghorn, in the island of Minorca, from 1744 to 1749 very conclusively show that cholera morbus is an effect of the cause that produces remittent, intermittent and continued fever, dysentery, &c. Dr. Jackson, quoted, by Dr. Cooke, in allusion to an epidemic yellow fever which prevailed in Philadelphia in 1820, says: "in the past summer and autumn diseases assumed the general symptoms which they possessed in the former epidemic of 1793, 1797, and 1798. *Cholera morbus and infantum were very prevalent;* bilious and remittent fevers from which our city had been for several years nearly exempted, were common diseases; and dysentery, which had become a rare disease in Philadelphia, was of frequent occurrence, and very difficult to manage." The occurrence of dysentery, intermittent fever and other forms of malarious disease in connection with cholera is almost universal, but is often unrecorded because of the greater importance attached to cholera. The coincidence of these forms of malarious disease, during the prevalence of cholera, was noticed in Louisville in 1832, and in 1833, in Lexington, Simpsonville, Ky., in Palmyra, Mo., and Dr. Halphen, a thorough contagionist, incidentally mentions the fact, that during the prevalence of cholera in New Orleans, even the cases of fever and ague, had cholera symptoms. The reader of our former sketch will remember the statements we

collected from many sources, giving descriptions of the localities of cholera. The following statement of Dr. Cooke, when speaking of cholera infantum, shows how perfect the identity is in the localities of what is called Asiatic cholera and cholera morbus and infantum. Dr. Cooke says: "In cities, those parts most favorable to the production of fevers, such as narrow dirty alleys, and filthy suburbs in the neighborhood of marshy inlets, brick-yards, standing water produced by regulating streets, &c., are also most productive of cholera infantum." If he had been giving the topography of cholera itself, he could not have given a more accurate description. No matter what the situation may be, whether high or low, wherever water may stand, malaria may be produced, and wherever that is the case cholera may show itself. We are not yet well enough acquainted with all the minute matters that are concerned in the production of malaria, to say with certainty what particular form of disease its presence may produce; attempts have been made to give specific names to the different kind of malaria that produce the infinite variety of diseases ascribed to it, but such knowledge is quite useless until we know the nature of the changes. We can tell with certainty that malarious disease is about to commence its operations, but we do not know what form it may assume until the disease developes itself. When we know what the circumstances are that are essential to the formation of malaria, we know enough to prevent its operations, and to this important point the philosophic physician should address himself.

But a residence immediately contiguous to a source of malaria is not by any means essential to its action. Persons at considerable distances from the origin of malaria may be severely affected by it. It is carried by wind and fogs to considerable distances. The latter medium o transportation has carried malaria so frequently, that a

one time fogs were believed to be the cause of remittent and intermittent fevers, until it was noticed that the dense and long continued fogs of Newfoundland did not give rise to any diseases of this description. The fishermen live for months in the fogs formed by the condensation of the vapors arising from the gulf stream in the neighborhood of Newfoundland, and they are not affected with agues, autumnal fever, nor any of the forms of malarious disease.

It has not been accurately determined how far malaria, sufficiently strong to produce disease, may be carried by the wind. Malaria cannot rise perpendicularly more than forty feet, but it may be carried some distance up the surface of a hill. The convent of Camaldoli is often referred to as an instance in point. That convent is about three miles from the malarial lake Agnano; it has no local source of malaria, yet malarious disease occasionally shows itself among the inmates, and the malaria is properly referred to the lake Agnano. While the English troops were suffering on Walcheren island, persons on board of the ships lying between two and three thousand feet from the shore escaped. A similar result has often been noticed in various parts of the world. This fact shows that malaria cannot pass any great distance over water, and in favorable positions may prove useful as a sanitary measure.

The tenacity with which cholera clings to damp situations, and the fondness of malaria for such places, if the expression is allowable, is conclusive proof of the malarious origin of cholera. A moist air will convey malaria a greater distance than dry air will; and this fact is offered as an explanation of certain phenomena in malarious diseases. It has been noticed sometimes that malaria attacks a hilly situation, while the plain is exempted, and this has been observed in the history of cholera. The explanation is, that a hill attracts moisture from the clouds, which affords

a pabulum for the malaria, while the dry air of the plain destroys it. The application of this fact to some of the features of cholera throws light upon a seeming paradox.

The conveyance of malaria by the winds is an old and well established fact. It first roused the attention of Lancisi to the subject, and since his day the fact has been abundantly corroborated. Residents on the leeward side of a marsh are more likely to suffer from malaria than those on the windward side. And the character of the wind too has something to do with the evil. A south wind, as a general rule, is a better conductor of malaria than a north wind is. There is no doubt of the fact, that the south wind conveys it in an active condition to greater heights than the north wind does. Captain Smith, quoted by Dr. Elliotson, in his "Statistical table of Sicily," mentions seventy-six unhealthy towns and villages, and thirty-five of them are situated on hills or declivities, and at a great distance from the marsh. Dr. Elliotson adds: "When the wind blows from the south, being a warm wind, it has a tendency to ascend; and it is supposed that the southern wind—blowing over a marsh, and tending upwards by its temperature—affects high towns, while the colder northern wind does not affect those houses situated on the other side of the swamps, though placed equally high."

Another singular fact noticed in cholera, and which has surprised many, is, that in many instances one side of a street is assailed by the disease, while the other side is free from it. This has been noticed repeatedly in cholera, and is forcibly stated by Dr. John Bell, in his remarks on epidemic cholera. The fact has been noticed all over the world, and was strikingly exhibited in Augusta, Ga., in 1839. In that city, one side of a street was severely ravaged, while the other side was entirely exempted from the disease. Even in camps this singularity has been noticed. In this feature of cholera, we have another

strong corroborative proof of the malarious origin of cholera. This singularity has been often noticed in various forms of malarious disease, and is often exemplified in agueish attacks. Observers of natural phenomena have noticed, says Dr. Elliotson, that dew and frost show the same singularity. They will spread to a particular spot or bush, and none will be found beyond them. This, too, must be the case with malaria—it is conveyed to a certain spot, exerts its influence there, and is restricted there. The minute and extensive observations that are in the course of accumulation on the subject of meteorology will yet clear up all these difficulties, and we must hold fast to the facts we have, in order to enjoy the advantage of those that may be gathered hereafter.

Having thus explained the sources of malaria, a knowledge of which may lead easily to methods for avoiding its disastrous effects, we shall now turn our attention to other features of the subject, which are scarcely less important than a knowledge of the sources of this agent of danger. Position has much to do with the dangers of malaria. It attacks with more violence those who sleep near the ground, than it does those who lodge in upper stories. It is highly probable that malaria is much heavier than atmospheric air; hence a reason for its action upon lodgers in lower rooms. We have often, in Louisville and in Jefferson county, seen striking illustrations of the law; the most violent forms of fever are found in the lower apartments, milder forms in the second story, and no trace of malarious disease in the third. In 1832 and in 1833, when the cholera was in Louisville, we took advantage of this fact with a number of families living in houses with basement stories. We induced them to remove their negroes to the attics of their dwellings, and not an attack occurred among the negroes thus protected, while the servants living in adjoining houses, and who slept in the basement rooms, died with the disease. This

is a valuable truth that should be remembered in regard to all malarious disease. Whether malaria clings to the earth because of its weight, or from some peculiar attraction by the earth's surface, or because the lower strata of air are more moist than the upper ones; the fact that its noxious influence does not rise to any great perpendicular height, is one that is well established, and should be acted upon during a malarious season. Another important law is, that malaria attacks with greatest potency at night. Hecker bears testimony to the fact that it was noticed in the epidemics of the middle ages, that the cause of those dreadful scourges acted with most power in the night. The physicians of that day, though utterly ignorant of the nature of the cause of those epidemics, noticed the fact, we are upon, so well that they deduced a prophylactic measure from it, and they warned the people against the noxious qualities of night air at particular hours. The fact thus noticed has been abundantly proven since that time. Dr. Elliotson quotes from "Lind on Hot Climates," the following facts: "When the ship Phœnix lay at anchor at St. Thomas's, two hundred and eighty men, constituting nearly all the ship's company, went on shore in parties of twenty or thirty, and rambled about the island, but none of those who did not remain on shore at night suffered; while none of those who slept on shore escaped sickness, and only three survived." The same author says: "At Batavia, a boat belonging to the 'Medway' was actually manned three times—every one having perished; and simply from the men having to attend duty on shore every night." The next year similar events happened to the same ship, at the same place, where "she lost eight men out of ten, who had imprudently remained *all night on shore*, while the rest of the ship's company, who, after spending the greatest part of the day on shore, always returned to their vessel before night, continued in perfect health." The force of the law we

are illustrating is seen in the fact that all forms of violent malarious disease are most apt to attack at night. A large majority of cholera cases commence in the night. The greater potency of malaria at night does not probably arise from any inherent quality in it, but is rather owing to the fact that all the sentinels of vitality are then asleep at their posts, and the powers of life are then less guarded than during our hours of active life. It is questionable whether malaria acts with any more power at night, on a person who keeps in motion, than it does during the day. Hence the reason why physicians are more exempt from malarious disease than any other class who have the same amount of exposure. The duties of their profession carry them into the focus of danger, but the active life they are compelled to lead guards them against the morbific effects of malaria. Even in the pestiferous Pontine marshes, where no stranger can escape if he lies at rest at night, active exercise is found to be of great service. Dr. Watson says: "The reapers in the 'Campo Morto,' a well known part of the Maremma, are permitted to sleep for two hours at noon. They do so at that time without danger; but when the dews of evening have fallen down upon the earth, which serves them for their bed, it is then that the poison puts forth its most deadly power." From all the facts we have found, this seems to be the law:—malaria has perhaps most power at night, and in a state of complete rest the body is more susceptible to the influence of the poison than when in active motion.

But motion in the open air of a malarious district should be avoided *early in the morning*. Abundant experience in this country has established this as an important measure of security, and it is recommended by experience that those persons whose avocations carry them out early in the day, should invigorate the system by some nourishing food, and, as a general rule, coffee and bread

will be found to answer the purpose. We have seen this principle very usefully employed in cholera districts.

It follows, as a matter of course, that if malaria is mixed with the atmosphere, it will travel with it, and the movement of malaria, by currents of air, from its source to a distant point, has been frequently noticed. An immense volume of facts might be written in proof of this. The instance of the convent of Camaldoli has been already referred to, and Dr. Ferguson has given some striking examples in cases that occurred at the island of Dominica. His facts are interesting, but his inferences are very wild. Dr. Ferguson says, that there are two hills at the port, Prince Rupert, which are joined to the main land by a flat and very marshy square isthmus to *windward*, of about three quarters of a mile in extent. The inner hill is of a slender pyramidal form, and rises from a narrow base nearly perpendicular, above and across the marsh from sea to sea. The outer hill is a round-backed bluff promontory, which breaks off abruptly in the manner of a precipice above the sea. Between the hills runs a very narrow clean valley, where all the establishments of the garrison were originally placed," (and this did not much improve the cleanliness of the valley); "the whole space within the peninsula being the driest, the cleanest, and healthiest surface conceivable. It was speedily found that the barracks in the valley were very unhealthy; and, to remedy this fault, advantage was taken of a recess or platform near the top of the inner hill, to construct a barrack which was completely concealed by the crest of the hill from the view of the marsh on the outside, and at least three hundred feet above it; but it proved to be pestiferous beyond belief. No white man could live there, and it had to be abandoned. At the time this was going on, it was discovered that a quarter which had been built on the outer hill, on nearly the same line of elevation, and exactly five hundred yards farther

removed from the swamp, was perfectly healthy; not a single case of fever having occurred in it from the time it was built." In the case of the unhealthy hill, the malaria was carried up the face of the hill, and rolled in a torrent down upon the garrison, hence the fatality. These facts show the importance of ascertaining the direction of the prevailing winds during the malarious season of the year, in determining the location of a dwelling. But if this is already fixed, a protective measure may be found in the interposition of a screen of living vegetation between the marsh and the dwelling, and while trees are growing, resort may be made to the planting of annuals that grow luxuriantly. A screen of vegetation is a potent agent for arresting malaria.

In numerous histories of cholera we have seen the statement made, that the disease commenced its ravages immediately after a fall of rain. In some instances the disease appeared in a few minutes after the rain. Dr. Elliotson quotes Lind and Mungo Park in proof of the fact that "malaria is precipitated by rain. Park says that, on one occasion the rain had not begun more than three minutes before many soldiers seemed drunk, and fell asleep; while others vomited; and he mentions that, in a storm, he himself felt disposed to sleep, and could not help it, although he was on damp and, therefore, dangerous ground."

The use of lime about dwellings is another excellent mode of arresting the effects of malaria. It should be used with much profusion.

We have thus carefully traced the cause of cholera, and from a most minute and careful examination of the history of the disease in every part of the world, we are as certain of its malarious origin as we are that intermittent fever is the result of malaria. We speak from personal knowledge, when we say that we have seen cholera faithfully obey every law of malaria; and we have never

known it to disregard any one of those laws. We have seen the disease controlled in its march by those means that disarm malaria of its power; and we have never seen this done by any other method. Hence the value of the minute acquaintance with the whole subject of malaria, which we have endeavored to inculcate in these papers. In portraying the subject, we have generally followed the paths of Drs. Elliotson and Watson, but we have carefully abstained from all speculations, and have endeavored to confine our remarks exclusively to useful matter. This has been a labor of no ordinary character, for, in order to speak the truth respecting the cause of cholera, we have not only faithfully read every history within our reach of the disease in every part of the world, but we have studied the topography of every place where it has appeared, and have gathered all the meteorological information it was possible for us to command. Why we have thus labored on this subject is well expressed in the following remarks in the July number of "The British and Foreign Medico-Chirurgical Review." The reviewer thus eloquently and impressively addresses himself to medical men:

"The true philosophy of the science of medicine is the knowledge of the causes of disease. Or, if these causes be too subtile and refined for our gross senses, it is the knowledge of the several conditions, external or internal to the body, which give those causes power. In the future history of medicine, we shall see men returning to the principles promulgated by its earliest founders. They will perceive that the treatment of the fully formed disease is at the same time the most difficult, and the least useful part of their noble profession. They will learn to arrest the evil at the fountain-head, and not to dam the current swollen by a thousand tributaries. And if the principles which we have analyzed in this article be correct, it will not be the least triumph of this philosophy, that it has indicated the true mode in which the great epidemic of our time can be most easily and most effectu-

ally controlled. It bars out the disease, not with quarantines and cordons sanitaires, but with a cleanly people and uncontaminated air. The evil which springs from the bosom of nature only needs for its removal an observance of the rules which nature herself reveals."

In the article to which these admirable remarks are a peroration, there is no attempt to trace the malarious origin of cholera, yet the writer conclusively establishes the fact, without intending to do so, that malaria is the cause of cholera. We have abundantly proven this point, and we repeat, that in the whole history of the disease, there is not a fact that mars the proof.

We shall close this department of our subject by calling attention to the suggestions made by the able body of gentlemen who were appointed by the poor law commissioners of London, to investigate the condition of the metropolitan poor houses with reference to cholera. We feel pleased with the fact that the gentlemen thus appointed had no idea of malaria in connection with cholera, and this gives their suggestions peculiar force. If they had had the malarious theory, their sanitary plan would have been open to the objection, that it was made to conform to their theory. As it is, the recommendations are the result of an immense deal of observation, experience, and testimony from many quarters, portions of which we quoted in our April number. The suggestions to which we allude have been adopted in London, and have been found remarkably successful and accurate. The editor of the London Lancet says: "these simple measures are worth all the nostrums or specifics which have ever been vaunted for the cure of Asiatic cholera." The quotations we make are exactly conformable to the laws of malaria, and show a most triumphant proof of the accuracy of the doctrine of the malarious origin of cholera. Here are the sanitary regulations of London,

based upon one of the most minute investigations that ever was made into the circumstances attendant on an epidemic disease:

"Let every impurity, animal and vegetable, be quickly removed to a distance from the habitations; such as slaughter houses, pig sties, cesspools, necessaries, and all other domestic nuisances."

We do not believe that animal putrefactions are ever connected with epidemic diseases, but there can be no objection to their removal from habitations.

"Let all uncovered drains be carefully and frequently cleansed.

"Let the grounds in and around the habitations be drained, so as effectually to carry off moisture of every kind.

"Let all partitions be removed from within and without habitations which unnecessarily impede ventilation.

"Let every room be thrown open for the admission of fresh air; and this should be done about noon, when the atmosphere is most likely to be dry.

"Let dry scrubbing be used in domestic cleansing, in place of water cleansing.

"Let excessive fatigue and exposure to damp and cold, especially during the night, be avoided.

"Let the use of cold drinks and acid liquors, especially under fatigue, be avoided; or when the body is heated.

"Let a poor diet, and the use of impure water in cooking or for drink, be avoided.

"Let the wearing of wet and insufficient clothing be avoided.

"Let a flannel or woolen belt be worn around the belly.

"N. B. This has been found serviceable in checking the tendency to bowel complaint, so common during the prevalence of cholera. The disease has, in this country, been always found to commence with a looseness in the bowels, and in this stage is very tractable; it should, however, be noticed, that the looseness is frequently at-

tended by pain or uneasiness: and fatal delay has often occurred from the notion that cholera must be attended with cramps. In the earlier stage here referred to, there is often no griping or cramp, and it is at this period that the disease can be most easily arrested.

"Let personal cleanliness be carefully observed.

"Let every cause tending to depress the moral and physical energies be carefully avoided; let exposure to extremes of heat and cold be avoided.

"Let crowding of persons within houses and apartments be avoided.

"Let sleeping in low or damp rooms be avoided.

"Let fires be kept up during the night in sleeping or adjoining apartments, the night being the period of most danger from attack, especially under exposure to cold or damp.

"Let all bedding and clothing be daily exposed during winter and spring to the fire, and in summer to the heat of the sun."

But our diminishing space admonishes us to arrest any further investigation at this time. We had hoped to be able to show how conclusively the proof establishes the fact that what is called Asiatic cholera is but a grade of cholera morbus, and, that they are not any more distinct diseases, than confluent and distinct small pox are. We hoped also to enter upon an investigation of the proper principles of treatment for cholera, and to make an examination of some of the prominent methods in vogue. We have room only, however, to urge upon our friends to be guarded against the extraordinary opiate treatment urged by Dr. Hawthorne. That gentleman's pamphlet has been republished and extensively distributed in the west and south, and must exercise a disastrous influence wherever its principles are followed. It is utterly impossible that such doses of opium, as are recommended in that treatise, can be given without inflicting serious injury.

T. S. B.

SELECTIONS

FROM

AMERICAN AND FOREIGN JOURNALS.

Observations on Collodion in the Treatment of Diseases of the Skin. By ERASMUS WILSON, Esq., F. R. S.—It is now about four months since a solution of gun cotton in sulphuric ether (collodion) was placed in my hands by Messrs. Bell, of Oxford street, and since I first proceeded to employ it in the treatment of cutaneous diseases. I was at that time much interested in the medical progress of a young lady (the daughter of a physician in the west of England) who had been suffering for many years with scrofulous ulceration of the skin in various parts of the body. She had been under my care for several months, and the sores were much improved, but they were nevertheless very far from being healed. The diseased skin had the appearance of being worm-eaten, its hollows were filled with pus, which burrowed beneath the surface, and it was moreover thickened and congested. By the constitutional treatment which I had pursued, I had to a considerable degree corrected the pyogenic tendency of her system; but I felt the want of a local remedy that would serve as an impermeable covering to the surface—in fact, take the place of the lost epidermis, and act the part of an artificial scarf-skin. I had tried vulcanized caoutchouc spread with adhesive plaster, gutta percha, nitrate of silver, astringent solutions, ointments, and pressure by bandage, in vain—the remedy was not as yet found. I was revolving this in

my mind when the collodion was put into my hand. The bearer of the little bottle may remember my exclamation, that "that was exactly the thing I wanted."

On the next visit of my patient, I removed the dressings from the sores, and pencilled them over with the new agent, which covered the surface with a powerfully adhesive film, of about the thickness of gold-beater's skin, and effectually represented the lost scarf-skin. A piece of dry, soft linen was the only additional covering required, and she left me, much delighted at the abandonment of the local applications and bandages. This young lady has since continued to apply the collodion herself, night and morning, until the present time, when the sores are nearly well, and the congestion and scrofulous thickening of the skin almost gone.

From careful observation of the effects of the collodion in this case, I found it to possess four important properties, namely:—

First. That of a mild stimulant.

Second. That of an efficient substitute for the natural scarf-skin.

Third. That of a mechanical compress.

Fourth. That of an adhesive glue, from which quality it derives its name.

First. As a mild stimulant, it is fitted to exert a local alterative action on the congested capillaries of a chronic ulceration, and give activity to the healing process.

Second. In its character of a substitute for the absent scarf-skin, it is transparent, pliant, and more or less impermeable, according to the thickness of the layer that may seem to be required.

Third. Its most remarkable property, as it seems to me, is the contraction which occurs during the dessiccation of the collodion, and which produces a local pressure of considerable power on the surface to which it is applied. Thus, in the case above related, the congestion of the thickened skin was relieved by the varnish-like film of collodion spread upon its surface, by means of a camel-hair brush, as completely as if a nicely adjusted bandage had been placed over it. In another instance, I found a film of collodion entirely remove a purple congestion (resulting from imperfect circulation) from the tip of the nose, in a lady who had long suffered

from the annoyance. In a third case, in which the fingers of an elderly lady were congested and blue, and the congestion was attended by pain and throbbing like that which accompanies chilblains, the collodion produced so much contraction as to render their tips white and bloodless, and I was obliged to discontinue the application in consequence.

Fourth. The glue-like property of the collodion is evinced in its adhesion to cut surfaces, a property which is much increased by the contraction above mentioned. When employed with the purpose of keeping together the edges of an incision, a piece of cambric or thin linen rag should be dipped in the solution, and placed along the line of the incision, after the cut edges have been adjusted and carefully dried, perfect dryness of the skin being a necessary condition to the adhesion of the solution. From the rapidity with which the solution dries, and its perfect adhesive powers, collodion is likely to occupy an important place among the "adjuvantia" of surgical practice.

The diseases of the skin in which I have hitherto used the collodion with advantage are, chronic erythema of the face; intertrigo; chapped nipples and chapped hands; herpes labialis, preputialis, and herpes zoster; lichen agrius; lupus non exedens and exedens; acne vulgaris; and several affections of the sebiparous organs. In chronic erythema of the face, its contracting power was most usefully evinced, as it was also in lupus non exedens and acne.

In a troublesome case of chapped hands and fingers, resulting from chronic lichen agrius, the collodion acted not merely as a protective covering, but also promoted the healing of the cracks more quickly than the remedies I have been in the habit of employing. In chapped nipples, it was even more efficient in its protective and curative action, and seemed, in the two instances in which I used it, to work a charm upon the painful skin. The gaping cracks were instantly drawn together, and almost obliterated by the contracting power of the remedy, and were effectually shielded from the influence of moisture, and the pressure of the gums of the infant, and all this in consequence of the rapid evaporation of the ether, in an instant of time. In another point of

view the remedy is invaluable as an application to chapped nipples, namely, as being in nowise injurious to the infant, from offering nothing which can be removed by the lips during the act of sucking, and in this particular therefore, possessing a vast superiority over the various forms of ointments, astringent lotions, etc.

In four instances it immediately put a stop to herpes labialiss, and in a very severe attack, it showed tseilt of be a powerful and useful remedy. Small superficial ulcerations of the corona glandis and prepuce, caused by excoriation, were cured by a single application, and in a gentleman very susceptible of excoriation, it acted admirably as a prophylactic. From the success of the latter trial, I am inclined to think that it might be usefully employed as a prophylactic, in cases of exposure to syphilitic contagion.

When properly applied, the collodion enters all the crevices of the lines of motion of the skin, and adheres so firmly as to require several washings for its removal. As it is usually prepared, it has the consistence of syrup, and in this state is best suited for those cases in which its adhesive properties are principally needed. Where, however, it is intended to be applied to the surface of an ulcer or abrasion, or to chaps of the skin, I find it convenient to dilute it with ether, and render it almost as limpid as water.

In pursuing this subject I have made trial of a solution of gutta percha in chloroform, and also in benzone, but these solutions are very inferior to the collodion, for the purpose above named. Their adhesive powers are weaker than the collodion, and the layer which they form when painted on the skin, is apt to rise at the edges and rub off.—*London Lancet.*

Camphor and Chloroform Mixture. By T. and H. Smith.—There is great difficulty, or rather an utter impossibility of administering camphor in a state of solution in doses of sufficient potency in some cases. The form of pill, the only mode of giving large doses of this medicine, is objectionable in many cases, and in others altogether inadmissible. The camphor, being merely in

a state of mechanical division, on being set free in the stomach, from its extreme lightness quickly separates and floats about, thus producing in many cases much local irritation in the organ, instead of soothing or arousing the general system.

Messrs. T. and H. Smith, chemists, of Edinburgh, give a formula for exhibiting camphor in doses of almost any amount and strength—certainly as large as any case can require—and that in a state of perfect solution: thereby allowing of a nice adaptation of the dose to the circumstances of each case.

The formula is as follows:—Three drachms of solid camphor are dissolved in one fluid drachm of chloroform. This is, perhaps, one of the most remarkable cases of solution the whole range of chemistry presents to us. The solution is most *rapid and complete*, and the bulk of the liquid is now increased from one to four fluid drachms. This solution rubbed up with the yolk of one fresh egg, may be formed into an extremely elegant emulsion by the addition of water, without the slightest separation of the camphor or chloroform; in fact, no separation of any kind takes place. If to the proportions given above as much water be added as to make a four-ounce mixture, each teaspoonful of the mixture when formed will contain about five and a half grains of camphor, and about two minims of chloroform. The capability of the formula being varied, so that either the camphor or chloroform may constitute the predominating ingredient, must be quite obvious. The mixture can be administered in any ordinary vehicle, such as water, without the occurrence of any separation; indeed, the mixture is as readily and completely effected as cream with tea or coffee. We have tried the effect of several medicinal substances on the mixture. With none of them has any separation been caused.

A weak saline solution, composed of common salt, phosphate of soda, and an alkaline carbonate, mixed readily, as well as a solution of muriate of morphia and sulphate of zinc. With the volatile alkali and acid liquids—such as a weak solution of acetic and muriatic acids—the mixture seems to become more intimate and stable. The mixture with ammonia has stood since its

preparation—now fully a week—without any separation. With water alone, however, the chloroform solution of camphor separates in a few days, but they readily unite again when slightly agitated. The solution of camphor in chloroform, although insoluble in water alone, appears in this mixture to be in as complete a state of mixture as the butter, in milk when newly drawn from the cow.

The therapeutic value of the formula remains to be ascertained.—*Monthly Journal.*

Cases of Recovery from Poisoning with Chloride of Zinc, and the suggestions of an Antidote for this Poison. By T. STRATTON, M.D., Edinburgh. Surgeon Royal Navy, Particular Service; Member of the Natural History Society.

When chloride of zinc is exhibited internally, its medicinal dose is from half a grain to two grains, two or three times a day. The following cases of swallowing in mistake, a quantity of a solution of chloride of zinc, lately occurred in Montreal.

CASE I.—In a house in Craig street, in which I had been residing, there was a quart bottle, suitably labelled, containing a weak solution of chloride of zinc. E. R., a servant girl, aged 17 years, supposing that the bottle contained whisky, put its mouth to her lips and (Nov. 4, 1847,) drank about a wineglassful. She instantly knew she had made a mistake; she experienced pain and nausea, and had a quantity of milk given her; she vomited very freely. She felt indisposition and want of appetite for about three weeks after. She was not seen by any medical man, as shame prevented her from speaking of the occurrence till a month after, when I saw her. On the supposition that she drank two ounces of the solution, I have reason to think that she took twelve grains of chloride of zinc.

CASE II.—In May 4, 1848, J. C., aged 54 years, a porter, a stout healthy man, at noon, took up a quart bottle, properly labelled, containing a dense solution of chloride of zinc, and supposing that it contained whisky, he put it to his mouth and drank (as he afterwards told me he supposed) about a wineglassful. A large wine-

glass contains two ounces and five drachms, and if we consider that he swallowed about two ounces of the solution, I have reason to think that he took four hundred grains of the chloride of zinc; but, from the nature of the liquid, it perhaps is unlikely that he took more than an ounce of the solution, or two hundred grains of the chloride of zinc; from the size of the mouth of the bottle, it is not likely that he took less than this.

He instantly felt a burning pain in the gullet, burning and griping pain in the stomach, great nausea, and a sense of coldness. In about two minutes he left the house, and vomited freely in the street for about fifty yards, till he came to a friend's house, where he lay down and continued to vomit, or endeavored to do so. I was requested to see him, and arrived about twenty minutes after; there was severe twisting and burning pain in the stomach; nausea and vomiting; cold-sweating; pulse 45, small, weak; his legs drawn up: anxiety and alarm. I instantly made a strong solution of home-made brown soap, and gave him a quantity of it. He vomited every two or three minutes, and in the intervals drank of the soap suds, of which he had altogether three or four pints. He also had warm water. The matter vomited was quite free from odor, as I showed to Dr. Winder and Dr. Mount, who were present. He now felt much easier; there was not much stomach-pain, except on pressure; pulse 50; less coldness. I sent him home in a cab, in which he vomited at intervals all the way. I ordered twelve leeches to the epigastrium, and an ounce of olive oil every hour.

5 o'clock, P.M. Has vomited several times after the olive oil; pulse 60, natural fulness, soft, weak; no particular thirst. They could not procure leeches. A sinapism to the epigastrium. To take an ounce and a half of castor oil now, and half an ounce of olive oil every second hour.

May 5th. Slept a little; stomach is easier, still some heat and pain on pressure; he applied a second sinapism, which gave great relief; has vomited several times soon after taking the olive oil; tongue dry; thirst; one fetid stool; pulse 72, soft. Repeated the castor oil; continue the olive oil every four hours; linseed tea and water for drink; no food; a blister five inches square to the epi-

gastrium. In the afternoon, he vomited four pieces, about three-quarters of an inch square, of a thin substance; they were not kept, but from the description they probably were eroded shreds of the mucous coat of the stomach.

6th. Blister rose well; no pain internally; tongue red on tip, brown on edges; pulse 80, small, soft, weak; thirst; two fetid stools. No vomiting; discontinne the olive oil; cold water only for drink; to take an ounce of castor oil in the morning.

7th. Got up; no pain on pressure over the abdomen; no vomiting; three fetid stools; some appetite; pulse 60; tongue moist, white; weakness.

10th. Appetite pretty good; no uneasiness in the stomach.

12th. Appetite improving.

15th. Appetite, digestion, and strength are the same as usual.

30th. He continues in perfect health.

On the first day, the patient was seen also by Drs. Winder, Mahony, Hall, and Mount; and several times after by Dr. Winder.

Remarks.—As the solution of the chloride of zinc was not made by myself, but supplied to me, I am not quite certain of its strength; I have good reason, however, to think that its strength is what I have stated above. The first patient took some of a diluted solution, and it is worthy of notice that she suffered from anorexia, etc., for three weeks after; while the second patient, who took a much larger dose, recovered his usual appetite in much less time; probably from his having administered to him the proper antidote, while the other did not apply at all for advice.

As chloride of zinc has a great deodorizing power, I took the opportunity of observing, in the second case, that the matter vomited had no odor, which probably arose from chloride of zinc. I was careful to observe if the stools were fetid, and their being so was perhaps some proof that none of the chloride had passed lower than the stomach.

Antidotes.—Sometime ago, on washing my hands with soap, after having had them in chloride of zinc solution, I observed that decomposition took place; and I thought,

in the event of any one swallowing in mistake, or otherwise, an overdose of the chloride, that either soap, or carbonate of potash, or carbonate of soda, would be the proper antidote.

To a clear solution of chloride of zinc, I added a clear solution of carbonate of soda; carbonate of zinc was precipitated, and chloride of sodium, or common salt, remained in solution.

To a clear solution of chloride of zinc, I added a clear solution of carbonate of potash; carbonate of zinc was precipitated, and muriate of potash remained in solution.

To a clear solution of chloride of zinc, I added a solution of soap; the oil, or fat, in soap, became free, and floated in the mixture in round and oval pieces; carbonate of zinc was precipitated, and muriate of potash remained in solution.

With regard to the requisite *quantity* of the antidote:—as soon as an overdose of chloride of zinc enters the stomach, one of its first effects, fortunately is an emetic one; but perhaps cases will occur where, from an overloaded state of the stomach, or some other cause, vomiting will not have occurred by the time the physician reaches the patient; in such cases, for a drachm of chloride of zinc, the proportional antidotal dose is either a drachm of the carbonate of soda, or a drachm and a half of carbonate of potash, or as much soap as contains the above quantities of soda or potash. (In soap there is generally from six to ten per cent. of either soda or potash.) In nearly all cases, it will probably be found, that vomiting will occur immediately after taking the poison, so that much less than the above quantities of the antidote will suffice. It is exceedingly convenient to possess an antidote in soap, which is always to be had in houses without delay. Even when soda or potash is at hand, as well as soap, the latter seems preferable, as its oily part is useful either as an emetic, or to soothe the irritated or abraded mucous membrane. Castor oil may be prescribed to carry off any of the chloride which may have passed the stomach. Olive oil for a day or two, is sooting to the mucous lining of the esophagus and stomach, and sinapisms or a blister to the epigastrium appear to be all that is required.

Chloride of zinc, in medicinal doses, is useful in chorea, neuralgia, epilepsy, etc.; in surgical practice it is used as a caustic and escharotic, and applied externally in a weak solution, it possesses stimulant, alterative, and deodorizing powers over certain ulcers, where it has the great advantage over arsenical, mercurial, and lead preparations, of never giving rise to constitutional disorder from absorption. A peculiar solution of it (Sir William Burnett's Disinfecting Fluid) is largely used to preserve timber, canvass, and cordage from decay, and to preserve anatomical preparations, and for its deodorizing and disinfecting properties, and for various other hygienic purposes; and this solution, used in the manner directed, is perfectly innocuous.

I have looked into seven or eight of the latest works on Materia Medica and Toxicology, and have not found mention made of any antidote for chloride of zinc; in one of these works, there is, in parallel columns, a list of poisons and their antidotes; and that for chloride of zinc is left blank; so that, as far as I know, I am the first who has pointed out, and used the proper antidote for this poison.—*Brit. Am. Jour. of Med. and Phys. Sci.*

Meteorology and Health.—The Report of the New Orleans Board of Health, in the March number of the Medical Journal of that city, contains the following meteorological statistics, the bearing of which upon health will be perceived.

From observations made at different points in the valley of the Mississippi during a period of more than 20 years, the average quantity of rain that annually fell, amounted to about 2·5 feet prior to 1845; however, there has been a steady and rapid increase since over that average. That year (1845) the quantity of rain as ascertained by Mr. Lillie's rain guage, which is graduated to the thousandth part of an inch, was 2·419 feet, and there were 108 rainy days.

In 1846, the quantity of rain during the year was 6·39 feet, and there were 114 rainy days. In 1847, it had increased to 8·407 feet, which fell in 104 days.—

And in 1848, it amounted to the unusual quantity of 10·750 feet, and the number of rainy days was 116, as follows:—

In January,	1848,	8	rainy days—fall of rain	18·387	inches.
In February,	"	9	do do	11·890	"
In March	"	6	do do	2·705	"
In April,	"	8	do do	7·643	"
In May,	"	5	do do	11·675	"
In June,	"	16	do do	30·306	"
In July,	"	22	do do	14·110	"
In August,	"	15	do do	9·388	"
In September,	"	6	do do	2·075	"
In October,	"	5	do do	2·230	"
In November,	"	4	do do	7·265	"
In December,	"	12	do do	11·100	"

It is worthy of remark that the quantity of rain that fell in the month of June was fully equal to the average annual quantity for more than twenty years.

Case of Lithotomy. One hundred and seventeen Calculi, weighing four and a half ounces, successfully removed. By Paul F. Eve, M.D., Professor of Surgery in the Medical College of Georgia.

A brief notice of the following case, against the writer's expressed wish, was made in one of our newspapers. It is proposed to record it now, where, if it possesses sufficient interest, it legitimately belongs.

In the severe September gale of 1824, Mr. O'Bannon, then a lad of 18 years, was engaged at work upon a house, which was blown down. In the fall, he was struck upon the back with a piece of timber, and from the injury then received he dates his difficulty in urinating. During the twenty-four years he has been a sufferer, Mr. O'B. has fully tested the prescriptions of the *unprofessional* of several States, and he has traveled far and near in search of relief. He even became a sailor on the ocean; but all to no purpose, his disease continued to harrass him day and night.

For the past two years his difficulty became so great, that to discharge urine at all, he had to assume the horizontal position, and then with the fingers introduced into

the rectum, he pushed up the bladder. A large quantity of matter, he says, is also evacuated by the penis. When he sits upon the edge of a chair he experiences a sensation as of crushing (crepitation) a ball of snow in the perineum.

In December he entered the charitable Institution under our Faculty, and a catheter was for the first time attempted to be introduced. This came at once in contact with a calculous mass in the perineum, where a tumor was found, projecting to the right of the raphe running back from the scrotum.

Operation.—On the 16th of last month (January) the following operation was performed in the presence of the Medical Class of our College—chloroform was administered by Dr. Means. After the patient was placed in the usual position for lithotomy, an incision, about three inches in length, was made over the tumor situated in the perineum, as for the lateral operation, except that it was upon the right, instead of the left side. About 56 calculi were removed through the opening, and it was hoped the operation was completed; but upon introducing a female catheter through the wound into the bladder, a second collection of stones was readily detected in this receptacle. A grooved sound was now passed through the urethra and the double lithotome conducted by it into the bladder; the former was withdrawn and the bi-lateral section completed, by drawing the latter instrument out somewhat in the line of the external incision made in the skin. With the lithotomy forceps repeatedly introduced, by conducting it upon the finger, 61 stones were extracted from the bladder. Through the opening in the perineum a quantity of pus was discharged. During the operation, the rectum protruded in a large mass so as to interfere with lowering the handle of the forceps, to seize the calculi in the bladder. The patient also had violent and involuntary contractions of the abdominal muscles, and during the latter stage of the operation the chloroform was discontinued. It lasted one hour. He was so reduced by his long suffering, a period of twenty-four years and four months, that after the operation I took him like a child in my arms and carried him up a flight of stairs to his room.

The following is the analysis of the calculus, kindly made by Professor Means, and addressed to me:

"The urinary calculus, taken from the bladder of Mr. O'Bannon, has been subjected, at your request, to a chemical analysis, and merits at my hand the following description, viz:

External form.—The particular calculus under consideration, is but a fair specimen, both in its physical properties and chemical constituents, to every other of the entire number removed from the perineum and cystic cavity of your recent patient, and which, by your courtesy, I was privileged to examine both during, and after the extraordinary operation. Being a solid, bounded by four oblique planes, it presents the tetrahedral shape distinctly; its solid angles and lateral edges, instead of being regularly truncated, and replaced by tangent planes, exhibit gently rounded surfaces, which gradually blend with the respective faces, and are evidently the result of constant attrition, kept up for many years.

Physical characteristics.—The exterior furnishes a beautifully smooth, and even polished surface. The structure is laminated with admirable parallelism—the respective tunics conforming to the external figure of the stone, and easily separable by the nail—the fracture uneven, and the powder, harsh and gravelly under the touch.

The predominant color is a greyish white, which is frequently substituted, however, in the more deeply seated laminæ, by a pale-brown tint. Its specific gravity, is 1.02.

Chemical constituents.—I had anticipated the uric acid calculus, but the use of the blow-pipe flame, and the application of appropriate acid and alkaline tests, soon revealed the presence of Phosphate of Lime almost pure. This form of urinary concretion has been pronounced by Silliman, Gardner and others, as very rare. It is peculiar, however, to the prostate gland, in the neighborhood of which the calculi, in your recent operation, were found to be imbedded, and which probably controlled the chemical affinities that subsequently deposited so large a mass in the fundus of the bladder. Its chemical elements are 3 atoms of Phosphoric Acid, 8 of Lime, and one of basic water, as expressed in the following formula:—$8CaO, HO+3PO_5$.

The fusible Calculus (Phosphate of Ammonia and Magnesia) has in one or two instances, reported in the Philosophical Transactions, for 1809, been found in such quantity as nearly to fill the cavity of the bladder, but so large a mass of Bone-earth calculi, is surely a still more rare occurrence.

The whole number extracted was 117, of which the largest weighed ℥ij. and 38 grs.; the two next in size, each 78 grs., and the smallest 1 gr.—furnishing an aggregate weight of ℥ ivss."

As usual with me, no dressing was applied to the wound, but the patient was requested to keep his knees together and to remain perfectly quiet. He took 40 drops of laudanum the night after the operation, and his diet was restricted to cold lemonade flaxseed tea. He also omitted the medicines upon which he had been placed, viz., Peruvian bark and sulph. iron, with volatile alkali occasionally.

January 7th. Had passed a pretty good night. Some urine had even been already voided by the natural passage, notwithstanding the opening in the perineum. He has bathed himself in warm water; has now no fever, is quite cheerful, smokes his pipe, and has taken some soup, table tea, and an orange.

Jan. 8th. Is doing well. Has had a good night—the best, he says, for years past. Uses a bed-pan to prevent soiling the clothes. Has sat up a little by the fire.

He has continued gradually to improve, notwithstanding the unfavorable state of the weather. No other application to the wound than castile soap and warm water, several times daily.

On the 10th, four days after the operation, he changed his room. He experienced the next day some uneasiness in urinating, and had for a day or two slight diarrhea.

On the 17th, the 11th day since the operation, he was out in the yard walking about. By pressing the edges of the wound together he could now pass nearly all the urine through the urethra.

On the 24th of January, i. e., the 18th day after he was disembarrassed of his numerous calculi, Mr. O'Bannon returned home, a distance of 22 miles. The wound had nearly healed. He is to use, as a tonic, small doses of sulph. of quinine and iron.

A month after the operation, a special messenger reports him entirely well.

In noticing the peculiarities of this case, we remark, first, the cause—an injury to the spinal column, probably by partial paralysis of the bladder favoring a perversion of the function of this organ.

2d. The nature of the calculus—phosphate of lime or bone-earth. This is, I believe, peculiar to disease of the bladder itself. Any calculus may have a coating of phosphate of lime, but when composed throughout of this combination, the evidence is strong, if not conclusive, that the evil originated in the bladder.

3d. The long existence of the disease without its character being detected.

4th. The size and shape of the calculi. They appeared both in the perineum and bladder to have been regularly impacted, one against the other. Occasionally two, but generally one only was seized by the forceps in their extraction.

5th. The membranous portion of the urethra preserved its integrity, while the bulbous was ruptured by the stones. The two deposites, the one in the perineum and the other in the bladder, were about two inches apart.

6th. The calculi must have all had a common origin—there being no difference in their shape, color or composition. Those in the bladder were, however a little larger than those taken from the perineum. I agree with Prof. Means in the opinion that they probably originated in the prostate gland, observing the laws of chrystalization in their subsequent accumulation in the bladder and perineum.

7th. The remarkable fact that Mr. O'Bannon preserved his virile powers. His wife has borne several children, and is now actually seven months pregnant.

8th. The speedy recovery, in certainly, what must be considered, quite unfavorable circumstances.—*N. Orleans Med. and Surg. Jour.*

Cryptogamous origin of Fever, Cholera, &c.—The following are the conclusions at which Prof. J. K. Mitchell arrives in his work on the Cryptogamous origin of endemic and epidemic fevers, cholera, &c:—

"While I was impressed," (writes Dr. Mitchell,) "for the reason so ably stated by Holland with the greater probability of the organic theory, I prefer, for reasons stated by myself, the fungous, to the animalcular hypothesis.

"My preference is founded on the vast number, extraordinary variety, minuteness, diffusion and climatic peculiarities of the fungi.

"The spores of these plants are not only numerous, minute, and indefinitely diffused, but they are so like to animal cells, as to have the power of penetrating into, and germinating upon, the most interior tissues of the human body.

"Introduced into the body through the stomach, or by the skin or lungs, cryptogamous poisons were shown to produce diseases of a febrile character, intermittent, remittent and continued; which were most successfully treated by wine and bark.

"Many cutaneous diseases, such as *favus* and *mentagra*, are proved to be dependent upon cryptogamous vegetations; and even the disease of the mucous membrane, termed apthæ, arises from the presence of the minute fungi.

"As microscopic investigations become more minute, we discover protophytes in diseases, where, until our own time, their existence was not even suspected, as in the discharges of some kind of dysentery, and in the *sarcina* of pyrosis. We are therefore entitled to believe that discovery will be, on this subject, progressive.

"The detection of the origin of the muscardine of the silk worm, and a great many analogous diseases of insects, fishes and reptiles, and the demonstration of cryptogamism of these maladies, their contagious character in one species of animals, their transfer to many other species, nay even to vegetables themselves, all concur to render less improbable, the agency of fungi in the causation of diseases of a febrile character.

"A curious citation was subsequently made, of the fungiferous condition during epidemics and epizootics. These moulds, red, white, yellow, gray, or even black, stained garments, utensils and pavements, made the fogs fetid, and caused disagreeable odors and spots, even in the recesses of closets, and the interior of trunks and desks.

"These moulds existed, even when the hygrometric state did not give to the air any unusual moisture for their sustenation and propagation. Their germs seemed to have, as have epidemics, an inherent power of extension.

"The singular prevalence of malarious diseases in the autumn, is best explained by supposing them to be produced by the fungi, which grow most commonly at the same season. The season of greatest photophytic activity, is, in every country, the period of the greatest malarious disturbance. The sickly season is, in the rains in Africa, in the very dry season in Majorca and Sardinia, in the rainy season of the insular West Indies, and in the dry season of Demerara and Surinam. Even when the vegetation is peculiarly controlled, as in Egypt by the Nile, and the cryptogami are thus thrown into the season of winter and spring, that season becomes, contrary to rule, the pestilential part of the year.

"Marshes are a safe residence by day, whilst they are often highly dangerous by night. In the most deadly localities of our southern country, and of Africa, the sportsman may tread the mazes of a swamp safely by day, although at every step, he extricates vast quantities of the gases, which lie entangled in mud and vegetable mould. This point, so readily explained by reference to the acknowledged nocturnal growth and power of the fungi, is a complete stumbling-block to the miasmatists.

"The cryptogamous theory well explains the obstruction to the progress of malaria offered by a road, a wall, a screen of trees, a veil or gauze curtain.

"It also accounts for the nice localization of an ague, or yellow fever, or cholera, and the want of power in steady winds to convey malarious diseases into the heart of a city, from the adjacent country.

"It explains also well, the security afforded by artificially drying the air of malarious places, the exemption of cooks and smiths from the sweating sickness, the cause of the danger from mouldy sheets, and of the sternutation from old books and papers.

"On no other theory can we so well account, if account at all, for the phenomena of milzbrand and milk-sickness, the introduction of yellow fever into northern ports, and the wonderful irregularities of the progress of cholera.

"The cryptogamous theory will well explain the peculiar domestication of different diseases in different regions, which have a smilar climate; the plague of Egypt, the yellow fever of the Antilles, and the cholera of India. It accounts, too, for their occasional expansion into unaccustomed places, and their retreat back to their original haunts.

"Our hypothesis will also enable us to tell, why malarious sickness is disproportionate to the character of the seasons; why the dry Maremma abounds with fevers, while the wet shores of Brazil and Australia actually luxuriate in healthfulness. The prolonged incubative period, the frequent relapses of intermittents, and the latency of the malarious poisons for months can only be well explained by adopting the theory of a fungous causation.

"Finally, it explains the cause of the non-recurrence of very potent maladies, better than the chemical theory of Liebig; and shows why the earliest cases of an epidemic are commonly the most fatal."—*Med. Examiner.*

Rectum terminating in a Cul-de-sac.—Mr. Wickliffe gave the following history of the case:—A female child, large, well nourished, and apparently well formed, born Aug. 23d, 1848, 10 A. M. Within three hours after birth the infant took the breast voraciously, when she fell asleep, and slept many hours. When she awoke she refused the nipple, and never sucked again.

On the following day the nurse reported that the child had often made water, but had had no motion. A dose of castor-oil was then given; this induced vomiting; oil, mucus, and a yellow sticky matter, were thrown up. The child now strained violently to stool. On carefully examining the anus, which was unusually open, and of triangular shape, it was found of a red aspect, somewhat like a sprout of fungoid growth. A cylinder of soap could be introduced about half a barley-corn in length, a blunt probe not farther, and the little finger passed as far. The abdomen had become tense. Thirty-five hours after birth a director was introduced as far as possible, and with a phymosis-knife an incision was made in the direction of the usual track of the rectum, the point and con-

cave of the bistoury being directed upwards and backwards, to avoid, if possible, the vagina. The instrument was seemingly plunged into an elastic swelling; a few drops of blood only followed. Into the opening thus made, the canula of a trocar was introduced; this, at about an inch and a half, pressed against the elastic swelling before felt.—Through the canula a trocar was thrust; this was not, however, followed by meconium, but by a few drops of blood, and a drop only appeared at the orifice of the vagina, which was unusually large. A poultice was applied, and the child passed a quiet night, though she vomited occasionally. On the third day the child seemed little altered in appearance. Seventeen hours after the operation hæmorrhage came on from the vagina, and occurred at intervals for many hours. At ten o'clock P. M., the infant was tranquil, and died before midnight.

Examination twenty-three hours after death.—External appearances: A fine well nourished child; abdomen much distended; funis flattened, dried and transparent; a small clot of blood in the orifice of the vagina; the anus apparently patent. Opening the cavity of the abdomen, the first incision disclosed much fat and very distended intestine, the colon especially; there was no air in the cavity of the abdomen. The symphisis pubis was divided, and the bladder, uterus, and vagina removed, the posterior wall of the vagina being much infiltrated with blood, having been necessarily wounded in the operation. The rectum was entirely wanting. The colon terminated in the median line of the body in a cul-de-sac; it was much distended with meconium, which was slightly thinner, and not quite so dark-colored as usual; the appendix vermiformis caeci was unusually long. The uterus bi-angular rather than pyriform.—*Prov. Med. and Surg. Jour.*

Chloroform in Mania. By E. B. MOORE, M.D.—Some time since, about 9 o'cl'k P. M., I was called to see a lady, Mrs. H., Laboring under mental alienation. She had been troubled, for some days previous, with *odontalgia*, for which she had applied various "specifics" of her own and friends' recommending. At this time she did not complain of the tooth, but occasionally, she would put her hand to the face,

grate her teeth and groan;she would then rise, dance and sing, kick, strike, throw a chair, or anything that came in her way, as she was moved either with pleasure or pain. In short, she was perfectly maniacal. She did not know her own husband or any of her friends. Many efforts were made, without success, to persuade her to have the tooth extracted or to take something to quiet her raving. She said nothing ailed her—that she needed no medicine and would take none; and, as to losing her tooth she had no inclination. It became necessary to keep two or more persons constantly on the watch to prevent her from injuring herself or the things in the room. Under this state of things, I advised her husband to have the chloroform administered as the most certain means of quieting her. It was sent for, and by the assistance of three persons whom it took to hold her, it was administered. She made all the resistance in her power, but in a few minutes she was under its influence. She remained still about fifteen minutes, ween she awoke more rational, and was induced to take an anodyne. In a short time, however, she again became delirious, when the chloroform was administered the second time, and she again became calm. She was now kept under its influence till she was in a sound sleep from the effects of this and the anodyne. She slept quietly from midnight till morning, when she awoke perfectly rational. She then walked half a mile, had her teeth examined, again took the chloroform, and had the defective tooth extracted, without her being conscious when it was done. Since then she has enjoyed a comfortable state of health. I have been in the practice of giving chloroform for the last fifteen months, to alleviate the pains in parturition, in extracting teeth, and for various other affections, and have never yet witnessed any ill effects from its use.—*Boston Med. and Surg. Journal.*

We find in the Gazette des Hopitaux the following items of medical intelligence.

Doctor Zagorsky, celebrated by his works upon anatomy and physiology, died a short time since at St. Petersburg. He was a member of the Academy and professor in the Medico-Chirurgical Society of St. Petersburg. Born on the 9th of August 1756, at Tscheraigon, he was appointed prosector in Anatomy in 1787, he was called to the chair of Anatomy and Physiology in the School of Medicine at Moscow, which he afterwards left to fill the same post at St. Petersburg.

Of all the alimentary substances bread is one of the most nutritious, containing 80 per cent. of the materials of nutrition; beans and peas, however, contain as much as 92 to 93 per cent. Butcher's meat contains 35;—potatoes 25, carrots 14, greens and turnips 8 per cent. Thus a pound of good bread is equal to from two pounds and a half to three pounds of the best potatoes, and 75 pounds of bread with 30 pounds of meat equal 300 pounds of potatoes; and what is more remarkable a pound of rice or beans is equal to three pounds of potatoes.

Treatment of neuralgia of the neck of the uterus by incision of this organ, by M. Malgaigne.—The author performs this incision by sliding a pair of scissors upon the index finger of the left hand until the neck of the uterus is reached, when one of the blades is introduced internal, the other external to the seat of the pain, and with a single stroke he divides the anterior lip at the point indicated. M. Malgaigne is said to have repeatedly performed this operation, and that twice it was followed by hemorrhage. In both these instances he had practiced the horizontal incision by means of the curved scissors. He has given up this procedure for the vertical incision which never causes the loss of more than a few drops of blood.

Comparative advantages of Lithotomy and Lithotrity.—M. Guersant, in one of his late clinical lectures on the *surgical diseases of children* gives the following very interesting table of the comparative advantages and disadvantages of the operation of lithotomy and lithotrity.

Advantages.

Lithotomy.	Lithotrity.
1. Promptness of the operation.	1. No wound.
2. Always accomplished at one sitting.	2. No hemorrhage.
3. Complete extraction of the calculi.	3. Not necessary to confine the patient to bed.
4. No fear of allowing any to remain.	4. No fear of consecutive inflammation.
5. Applicability of the operation to all ages and to all calculi.	

According to this table we find the advantages about equal; it is not the same however as to the inconveniences.

Inconveniences.

1. Pain.	1. Many sittings, and longer than in cutting.
2. Danger of hemorrhage.	2. Pain as in cutting.
3. Wounding the rectum.	3. Fruitless sittings which does not occur in cutting.
4. Also of the ejaculatory canals.	4. Pinching of the bladder.
5. Fear of consecutive inflammation.	5. Consecutive inflammation.
6. Difficulty of extraction in certain cases.	6. Engorging of small calculi in the membraneous portion of the urethra.
7. Visico-perineal fistulæ.	7. Sometimes a consecutive operation
	8. Fear of leaving fragments in the *lacunal* that may exist in the bladder.
	9. Fistula.
	10. Unfavorable conditions in which patients are left after the operation and that at some future time it becomes necessary to cut.
	11. The employ of lithotrity, impossible when the calculus is of great size or encysted.
	12. Breaking of the instrument.

After comparing these circumstances, we deduce the following conclusions which tally in every respect with our experience: 1st. Cutting should be the method generally adopted in children. 2d. Lithotrity should be employed only in cases where the calculus can be crushed in a single sitting.

In support of these two propositions, the following figures are cited:

Of 42 individuals cut, 34 recovered 8 died; 4 from the operation, and 4 from intercurrent diseases. Of 21 individuals in whom lithotrity had been employed, 18 boys and 3 girls, 12 recovered and 6 died; 2 from the operation, 4 from intercurrent diseases;—3 were afterwards cut.

Thus of the 42 subjects cut for stone, 4 died from the operation; and of the 21 operated on by lithotrity, 2 died from the operation.

Sugar as an anti-aphrodisiac.—Dr. Provencal, former *chef de clinique* of the medical school of Montpellier thus speaks of this remedy. Sugar in large doses, in a hygienic point of view, is according to my experience, the most powerful medicament that can be administered as an anti-aphrodisiac. Camphor, by its prompt and instantaneous action has, up to the present time, occupied the first rank, and it is with great justice that it has been considered the antidote of cantharides, which is pre-eminently the aphrodisiac remedy.

Experience has proved to me that sugar in large doses is a truly powerful aliment and medicine, being greatly superior to camphor, since it unites the double property of paralyzing, as a medicine, the venereal ardor, and of repairing, as an aliment, its unpleasant consequences. The dose of sugar is one pound a day dissolved in a quart of water, milk or wine and taken at meals. In cases of masturbation, seminal losses, as well as in all cases of feebleness, wherever, in a word, it is necessary to repair the forces for which water and milk would be inadequate, I administer it in wine.

In cases of general irritability of the system, as is frequently observed among members of religious bodies, and in cases of priapism, I prescribe the sugar dissolved in cold water; finally in cases of excitation or irritation of the sexual organs complicated with irritation of the lungs, the sugar is given in milk or lukewarm ptisan of barley, if the milk prove difficult of digestion.

Nitrate of Silvr in Dysentery.—The following is the formula used by Dr. Guyton in dysentery:

℞. Nitrate of silver, ½ a grain to 1 grain;
Water, 10 drachms;
Syrup of poppy heads, 10 scruples;
Syrup of gum Arabic, 13 drachms;
A tablespoonful to be administered every hour.

The first effect of the mixture, according to its author, is to calm the pain and render the evacuations less frequent. It is especially in that form of dysentery called *gastric* or *bilious*, that it appears useful. D. W. Y.

Collodion as a coating for Pills. By Mr. E. H. Durden.—I find that collodion may be usefully employed for coating pills; for this purpose the pills may be placed on the point of a fine pin or needle, and dipped into the solution of gun cotton. The solution I used had a sp. gr. of 0.810, and I found two dippings gave a perfect coating. An aloetic or colocynth pill thus covered may be placed on the tongue, and no taste experienced of the bitter ingredients entering into its composition. Its medicinal effect is not interfered with. Solutions of gutta percha in chloroform, and bisulphuret of carbon, effects the same purpose, but the collodion is preferable.—*Pharmaceutical Journal.*

Adulteration of Cream of Tartar. By Mr. James Grant.—I beg through the medium of the Pharmaceutical Journal to call the attentian of Chemists and Druggists to the adulteration of powdered Cream of Tartar, as it is, I believe, one of those articles which, from its cheapness, &c. is generally supposed not to be worth sophisticating. A specimen obtained from one of the most respectable wholesale druggists in London yielded, in 100 grains, 8½ grains of sulphate of lime (gypsum.)

As cream of tartar is the source to which the chemical student is generally referred for pure carbonate of potash, the exposure of this fraud becomes doubly important.—*Ibid.*

THE WESTERN JOURNAL.

THIRD SERIES.—VOL. III.—No. V.

LOUISVILLE, MAY 1, 1849.

CLINICAL MEDICINE IN LOUISVILLE.

An ordinance was passed by the city council of Louisville, on the 26th of April, establishing the proper relations between the Marine Hospital and the medical department of the University, providing for the erection of a spacious theater in connection with the hospital, and the appointment of a lecturer, whose business it will be to give daily attendance to the sick, and clinical instruction to medical students. This subject, which has been agitated so long, and been found so difficult to settle satisfactorily, is now, we trust, placed upon a secure basis, and one which will prove beneficial to the hospital and the medical school. With a lecturer of talents, learning, and tact as a teacher, we do not see why clinical instruction in our hospital may not be rendered as profitable as it can anywhere be made to a large class. An ample number and variety of medical cases is furnished by the wards, and the late ordinance provides for the erection of a lecture-room spacious enough to seat five hundred students. The completion of this arrangement is a matter of congratulation with the friends of the school. It places the institution upon ground where alone a medical school, at the present day, can hope to command enduring success. It secures to it the means of imparting to its pupils instruction in clinical medicine.

UNIVERSITY OF LOUISVILLE.

Several very important changes have occurred in the medical department of the University of Louisville since our last number was issued, calculated, we think, to enhance the usefulness of the institution. We are sure that our medical friends, throughout the south and west, will be pleased to learn that the Trustees have secured the valuable services of Prof. E. Bartlett for the important chair of Theory and Practice. This gentleman has won an enviable distinction in Europe as well as America, by his valuable contributions to medical literature. His work on Fever has few rivals in this country, and has conferred no ordinary celebrity on its author. All his writings are pervaded by a spirit of philosophy, and are remarkable for the classical elegance and purity of their style. His mind is eminently practical, and, as an oral teacher of medicine, he is not less deservedly popular than as a writer. Prof. Bartlett has signified his acceptance of the appointment.

Prof. Yandell has been transferred to the chair of the Institutes of Medicine, lately held by Dr. Caldwell, and is succeeded by Benjamin Silliman, jr., Professor of Applied Chemistry in Yale College. Prof. Silliman's name has been most creditably associated with chemical science for a number of years; and, in addition to his wide-spread fame, the Board of Trustees had before them a number of letters from distinguished chemists in Europe and America, bearing strong testimony to his eminent abilities. He has been a successful teacher of chemistry in New Haven, and has received the warmest testimonials of the approbation of his classes. He has been for several years before the public as the assistant editor of the American Journal of Science and Arts, so well known as one of the most ably conducted scientific journals of the day. And, in addition to these evidences of his merits, he has published one of the best elementary works on chemisty which we have ever read.

May we not venture to congratulate the friends of the Louisville medical school, and of medical science, upon these auspicious changes? That they will add to the reputation of the school, and exert a beneficial influence upon medical science, we entertain no kind of doubt. With a Faculty thus constituted, and the new hospital arrangements made by the city Council, to which we have referred in another place, we cannot doubt that the institution is destined to a long course of prosperity and usefulness.

B.

DR. WARREN ON CHLOROFORM.

Dr. Warren, whose interesting work on Etherization we noticed some time since, has published a second tract on this subject, in which he gives the results of professional experience with anæsthetics down to the present time. From all that has occurred, he is brought to the conclusion that the ethers ought to be substituted for chloroform, Chloric ether was brought by Dr. W. to the notice of the medical association of Baltimore, last spring, as an agent which seemed to promise well for inducing anæsthesia. He would not use anæsthetics at all for trifling operations, and when deemed admissible would employ the ethers. He further cautions against excluding atmospheric air in the inhalations; recommends bleeding in cases where the narcotism is to be carried very far; to watch the pulse and respiration; not to administer these agents upon a full stomach; and, in operations not very severe, to produce only insensibility to pain without abolishing the intellectual functions. His "confidence in the beneficial effects of ether, in surgical operations, is undiminished;" but he adds, that if he were compelled to substitute chloroform, he would "do so with much anxiety."

Enough will be found in this treatise to awaken anxiety in all cautious practitioners about to administer this powerful agent. Nevertheless, we are still advocates for its cautious use. While it has been fatal in the hands of dentists and surgeons, and occasionally when imprudently inhaled by persons for the pleasurable sensations excited by it, we are yet to hear of the first instance in which death has followed its use by the physician or accoucheur. This, we think, cannot be accounted for by the comparatively limited number of the character of the cases, but depends upon the more gradual manner in which anæsthesia is brought about in such practice.

We have read Dr. Warren's second publication with great pleasure, and commend it to all readers wishing details on the subject.

MORTALITY OF NEW YORK IN 1848.

The city inspector of New York has made his annual report of deaths in that city, from which it appears that the total number for 1848 was 15,919. This number includes 1,161 prematurely born, and 205 brought to the city for interment, which deducted leaves the mortality 14,553. Of this number 327 died of casualties, suicide, and murder.

Of the deaths reported there were 7,020 adults, and 8,899 children; of whom 8,343 were males, and 7,576 females; 11,302 were natives of the United States, 3,949 of Ireland, 694 of Germany, 454 of England, 141 of Scotland, and 68 of France. In 1847 the mortality was 14,441, showing that the increase of population has not been attended with a corresponding increase of mortality, Excluding casualties, the excess of deaths in 1848 over the previous year was only 27. The greatest mortality in 1847 was from typhus fever, the number of deaths being 1,396. In 1848 the mortality from the same cause was but 943. The number of deaths from diseases of the bowels was 2,227; from small pox 444, an increase of 391 over the preceding year, which the inspector attributes to the neglect of those precautions which have been urged upon the citizens by the proper authorities. Among the causes of death may be noticed 12 cases of poisoning, 7 from hydrophobia, 20 tetanus, and 34 suicides.

CHOLERA.

From all points in this country we receive intelligence of the decline of cholera. At New Orleans it ceases to excite any uneasiness, although deaths from it continue to be reported. No mention is made of the disease in the last Nashville papers. In St. Louis fatal cases were occasionally occurring at the last dates, and boats from that city, as well as from New Orleans, have brought cholera patients to Louisville within a few days. In this place scattering cases are spoken of by our physicians, but there does not appear to be the slightest tendency in the disease to become general, and many even doubt whether we have yet had a single indigenous case of cholera. We are not of that number. The last European intelligence is that the epidemic was committing fearful ravages among the French troops stationed at Paris.

MEDICAL ASSOCIATION.

This body meets in Boston to-day. Louisville, and, so far as we are informed, Kentucky will be without a representative in it. We are glad to learn, however, that the profession elsewhere appears to be alive to the interest and usefulness of the Association, and that the attendance at this meeting is likely to be general. In our next number we shall be able to report the proceedings of the meeting.

DEATH OF DR. PRITCHARD AND DR. TOWNES.

The death of these eminent men is announced in the late English journals. Dr. Pritchard, by his great work on the natural history of Man, and Dr. Townes, by his writings on Chemistry, have made their names familiar to American readers. Dr. Townes was still comparatively young, and promised to confer great benefits upon the science to which he was ardently devoted.

PROF. HAMILTON'S FRACTURE TABLES.

Prof. Hamilton, of Buffalo, has collected and thrown into tabular form the history of 136 cases of fractures, for the purpose of determining the average results of treatment in such casualties. He does not believe that the results are equal to the expectations of the friends of surgical science. His tables will be examined with great interest by the surgeon, since it is only from such general statistics that safe opinions can be derived. The following is his summary of the various fractures:

Ossa Nasi, three cases; of which none are perfect; there being more or less deformity in each case.

Vomer, one case, with lateral displacement.

Inferior Maxilla, whole number five; all in adults; all compound comminuted; all have united. Three are perfect and two imperfect.

Clavicle, total eighteen. Perfect six; imperfect twelve. Two of the six perfect cases are children under eight years. Fifteen occurred near the junction of the outer third with the inner two-thirds; three near the middle. Four were comminuted; fourteen simple. I believe not more than three or four were transverse. All have united. Eight shortened from a quarter of an inch to an inch.

Acromion Process, one case; united by ligament, but use of arm perfect.

Humerus, fourteen. Twelve simple; two compound comminuted; thirteen united, one not united; three shortened from half to three-quarters of an inch. Five perfect; nine imperfect.

Radius, eight. All simple. Five perfect; three imperfect.

Ulna, nine. Seven simple; two compound. Eight perfect; one imperfect.

Radius and Ulna, thirteen. Eleven simple, one compound, and one comminuted. Two not united. Seven perfect; six imperfect.

Ribs, four. All simple. Two perfect; two imperfect.

Posterior Superior Spinous Process of Ileum, one case, and this left the fragment projecting.

Femur, twenty-eight. Seven through the neck; whether within or without the capsule I have not determined in but one instance. The

signs are generally too obscure to make a positive diagnosis. Twenty-six simple; two comminuted. Of twenty broken through the shaft, fourteen are shortened from half an inch to two inches. Only two fractures of the shaft of the femur, out of fifteen cases occurring in adults, are perfect. Probably all the fractures through the neck are shortened, but they were not all measured since recovery.

Patella, three. All united by ligament.

Fibula, four. Two perfect; two imperfect.

Tibia, two. One perfect; one imperfect.

Tibia and Fibula, twenty-two. Seven simple; fifteen compound, or comminuted, or compound and comminuted. Nineteen united; three not united. Twelve shortened from quarter of an inch to an inch and a half. Five perfect; seventeen imperfect.

REPORTS OF LUNATIC HOSPITALS.

The annual report of two of these institutions is before us—that of the Pennsylvania Hospital for the Insane, by Dr. Kirkbride, and that of the Eastern Asylum of Virginia, by Dr. Galt. Both reports speak of a crowded state of the wards, and point out improvements demanded by the unfortunate class of patients consigned to them. Dr. Galt shows that the inmates of the Virginia hospital are, for the most part, victims of a hopeless insanity—confirmed lunatics, in whose cases medical treatment avails but little. These are, indeed, rendered far more comfortable in the hospital than would be their lot elsewhere, but if cures are to be made, he informs the legislature that they must be from among a different class of subjects. Of those under his care, only two have been insane less than a year, and only 19 from one to five years, while most have labored under the disease five, ten, twenty, or thirty years. The report of Dr. Galt is an intelligent document, and evinces in its author a praiseworthy zeal in the benevolent cause to which he is devoted.

The Pennsylvania hospital discharged, during the year 1848, two hundred and three patients, of whom 120 were cured, 23 were much improved, 24 improved, 19 were stationary, and 17 died. Of the patients discharged "cured" 57 had been only three months in the hospital; 35 between three and six months; 24 between six months and a year; and but four for a longer period than one year. Nothing could more forcibly illustrate the importance of subjecting the insane at the earliest period to the salutary regimen of a hospital. The statistics of Dr. Kirkbride's report are ample and instructive.

VALEDICTORY ADDRESSES.

We are glad to perceive a growing disposition in medical classes to publish the valedictory addresses of their teachers. The sentiments uttered on the occasion of the last formal meeting of pupils and professors ought to be such as are worth treasuring up, and the effect of giving them to the public in an enduring form will be to elevate the character of such discourses. In those which have come under our eye this season we find much to applaud. Their tone is excellent, and they embody a code of professional morals which ought to meet with universal acceptance. Prof. Harrison, of Cincinnati, addressed his young friends "on the sources and benefits of Professional Earnestness," a fine example of which is afforded by every page of his eloquent discourse. The address of Prof. Barbour, of St. Louis, is in a kindred style, full of noble sentiments, clothed in forcible language. Our brethren of the College of Dental Surgery, at Baltimore, are represented in this line by Dr. C. O. Cone, who pronounced an appropriate and instructive discourse to the pupils of that institution, which has been published. All these addresses afford indications of progress, past and to come. They show that vast improvements have been made, and give promise in their tone of greater improvements in time to come.

LATE FROSTS.

The thermometer, for two or three mornings about the middle of April, fell, in the neighborhood of this city, as low as 24 deg., and the freeze has been destructive to most of the fruits and tender vegetation. The damage done to the crops of cotton, corn, and small grain in the south, is said to be very great.

DEATH FROM CHLOROFORM.

We have to record another death from chloroform. The Medical Times, of Feb. 17th, mentions the case. A young man in the Hotel Dieu of Lyons inhaled the vapor for a short time preparatory to having an operation performed. Before the operation was over life had become extinct. The effect of such a multiplication of these fatal instances must be to limit very much the use of this powerful agent.

BOWMAN'S PRACTICAL CHEMISTRY.

The object of this work is to explain and render simple to the beginner the various processes employed in analysis, or which illustrate the principles of chemical science. In this respect it has claims upon students in search of a practical knowledge of chemistry, superior to any work on the subject extant in our language. Its object is to instruct the novice in the operations of the laboratory, as well as in their rationale, and its aim has been so well fulfilled that we hardly see how the student could wish a more satisfactory guide. Not only to students of medicine, who wish to acquire some skill in chemical manipulation, but to the apprentices of apothecaries and druggists it is a manual which will prove exceedingly serviceable. A copy of it ought to be found in every drug-store in the country.

BELLEVUE HOSPITAL.

The Annalist notices improvements in this institution which will add to its usefulness. A new operating theater and clinical lecture room has been erected, and was formally opened and dedicated on the 2d of March. An address by Dr. Reese, the Resident Physician, was delivered on the occasion. Clinical instruction will form a part of the duties of the visiting physicians. Our correspondent, Dr. B. F. Wendel, whose reports from this hospital will be remembered by our readers, has again been appointed to a place in the institution, and his reports will be resumed.

MEDICAL STUDENTS.

The number of students in attendance at the Medical College of Ohio during the recent session, was 175, the number of graduates 50; at the Rush Medical College, in Chicago, the number of students was 100, and the number of graduates 18. The class at the College of Physicians and Surgeons of New York numbered 178; that at the Georgia Medical College 133, of whom 36 received the degree of M.D. The largest graduating class in this country was the late one at the University of Pennsylvania, and amounted to 190. The number graduated at the Jefferson Medical College was 188. The classes in both these schools were large.